Do Orchids Grow in Hawaii?

And How!

SYNOPSIS

This is an historical sketch of the Saga of Orchids in Hawaii. The sequence of events from the incidental introduction of species by the Agriculturists for the Sugar Industry; to their efforts in propagation and culture, hybridizing and germination; to the development of personal nurseries to commercial ranges; and ultimately to the creation of a viable orchid industry, recognized world wide; to the natural formation of orchid societies; staging of orchid shows; and finally to the introduction of a system of orchid judging , should bring interesting reading to orchidists, amateur and professional alike. In fact, this could serve as a reference syllabus to keep.

Alexander T. Adams

DO ORCHIDS GROW IN HAWAII?
AND HOW!

Compiled and Edited by

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PREFACE

We all know that the enjoyment and appreciation of Orchids has presently become a natural aspect in our expression of the "Spirit of Aloha" that is so very special in Hawaii today.

However, we believe that familiarity with its early introductory history will help us appreciate their beauty all the more.

Those beautiful orchid leis and pampered orchid corsages which we present to our visitors and friends had their origin over 100 years ago with the introduction of the species to our Islands. We now live in a profusion of orchids all around us.

With this publication, may we humbly present a portrayal of the sequence of events to serve as a continuous diary to link previous activities and the present pursuits for the development of this genera in this State. We have chosen only those articles which have a direct bearing on the historical connection. In this way, we get to know the original hobbyists and to see what they attempted to do in their day.

It is our hope that future generations of orchidists will continue this chronicle of the Saga of the Orchid which has so immensely influenced our life-style within this "Paradise of the Pacific" which we all call home.

We, the members of the American Orchid Society Hawaii Regional Judging Center and its affiliated organizations most heartily and earnestly endorse this significant program for the future progress of Orchids in Hawaii.

Dr. T. David Woo

PART I.

INTRODUCTION OF ORCHIDS TO HAWAII

The History of Orchids in Hawaii

by Dr. T. David Woo [1]

INTRODUCTION Any attempt to write a paper of this magnitude precludes excessive research and severe editing of the enormous material accumulated. Original articles in the early orchid bulletins have been reviewed for references and are incorporated elsewhere. We intend to consolidate all information, past and present, into this paper for a more convenient, easier, and permanent resource history. Such has never been done before.

To present this information on the beginnings of the Orchid in Hawaii - its spread and propagation, its cultural and scientific appraisal, and its eventual development into an important floral industry, could casually read like a Chamber of Commerce commercial.

Despite that, its is a sincere effort to document a phase in Hawaii's culture, in which the advent of the Orchid and its hybrids have influenced and augmented in great measure the beautiful customs and lovely practices that are found in our islands, which we call "Paradise of the Pacific".

Witness the impact on our tourist industry, whereby the new arrivals are decked with orchid leis to emphasize our "Aloha" spirit which is peculiar to Hawaii alone.

Today, our orchid industry approaches the $Million mark, and Hawaii has become an orchid center for hobbyists and commercials alike.

EARLY PIONEERS We wish to recognize first of all, the contributions of the early adventurers who introduced the genera, and the original growers who propagated these species to establish the orchids as grown in Hawaii.

Much credit must be given to those scientists and researchers connected with the Pineapple Research Institute and the Hawaii Sugar Experimental Station who roamed the world in those days and kept an eye open for orchid species, in addition to their expressed purposes and work.

The following, like Drs. Harold Lyon, Walter Carter, Christos Sideris, William Storey, Colin Potter, and others are to be commended for their endeavors in this connection.

Many old-timers like Messrs. Frank C. Atherton, S. M. Damon, E. D. Tenney, Herbert C. Shipman (Hilo), Sloggett (Kauai), J. B. Warne, Donald MacIntyre, Mrs. Ellen Williams and many more, have made their contributions to the picture. These were the original orchid enthusiasts who held informal gatherings at their homes on plant comparisons and hobbyists' discussions for their personal interests.

In addition, the part played by the University of Hawaii, Department of Horticulture and Agriculture could not be overlooked. The orchid industry has been well benefited and promoted by their investigation and research into many aspects of classification, culture, germination, propagation, chromosome identification, meri-stemming, cloning, polyploidy, etc.

Drs. John H. Beaumont, William Storey, Yoneo Sagawa, Haruyuki Kanemoto, K. Kosaki, and others have done outstanding work in this connection and for training students in the orchid sciences.

ORIGINAL INTRODUCTION OF ORCHIDS TO HAWAII It was stated that originally, the Hawaiian Islands, because of their volcanic origin, were barren and devoid of any vegetation for a long time. The advent of any flora and fauna must have taken centuries to accomplish and accommodate this change.

Meanwhile, the original inhabitants or Polynesians had developed their own culture, undisturbed by outside influences.

However, after Captain James Cook discovered the Sandwich Islands in 1798, Western impact did cause upheavals in their health, welfare and community affairs. This History of Hawaii speaks of the conquest of the islands under one King Kamehameha the Great, later of the overthrow of the Kingdom of Hawaii, which then became the Territory of Hawaii, and finally of its annexation to the United States of America as the 50th State. This is another story for another paper on history alone.

Sometime later came waves of immigrants to the shores of these idyllic isles, plus the inevitable introduction of various flowering plants and exotic fruit trees, as well as animals for pets and food. Thus it was evident that the islands would never be the same again as a natural, unspoiled Paradise.

Regardless, it was pointed out that evolution, per se, had not had time enough to develop any indigenous species of orchids to any degree, though a few primitive specimen have been identified as such. Incidentally, much lush vegetation and luxurious rain forests have developed in the meantime.

The early Chinese immigrants were credited to have brought with them Cymbidiums around 1880's. To them, the blooms of the Cym. sinense (Cym. hoosai) personified "purity and nobility" while extruding "the fragrance of kings" by their presence.

It was mentioned that Mr. Harold Jeffs had imported Dendrobiums from the Philippines and Cattleyas from South America in 1900's. His collection later was sold to Mr. Frank C. Atherton.

Several other people also had imported Phalaenopsis, Dendrobiums and Cattleyas from different sources in 1896, and by 1909 there were several large and valuable collections of orchids seen in Hawaii.

In those days, it took about 40 days for an orchid plant to come by boat from England which was reputed then as the center of the orchid trade. With the period of quarantine that followed, many plants did not fare too well, much less survive. The prices quoted were exorbitant, so only the rich and affluent could indulge in such a hobby.

An early introduction was identified as V. tricolor from Germany in 1800's. It was said that the Damon Estate did have spectacular display of V. tricolor 'suavis' at one time.

Phal. schilleriana made its appearance in 1907 when procured by Mr. Herbert C. Shipman of Hilo.

AMERICAN ORCHID SOCIETY IN HAWAII

A. OAHU ORCHID GROWERS' ASSOCIATION:

By 1950, there was in existence a group of commercial growers who had formed an association for their common interests.

It was in 1955, through the efforts of Mr. Gordon Dillon, Executive Secretary for the American Orchid Society, Inc., that the status of the AOS was promoted during his visit to Hawaii.

The officers of the association elected then were:

President: J. Milton Warne
Secretary: Benjamin Kodama

In anticipation for a change over to the American Orchid Society, a panel of judges was proposed and later certified by the American Orchid Society in 1961. They were William Kirch, Oscar M. Kirsch, Benjamin Kodama, Masatoshi Miyamoto, John K. Noa, Sr., J. Milton Warne, Robert E. Warne, and Herbert C. Shipman.

This association later was disbanded and they donated the left over finances to the Hawaii Orchid Societies, Inc., which followed.

B. HAWAIIAN ORCHID SOCIETIES, INC.

In 1955, this body was organized to sponsor monthly judging sessions according to AOS standards.

The original officers were:

Chairman:	Reverend Masao Yamada
Vice-Chairman:	Robert Kennedy
Clerk:	Isao Takemoto
Photographer:	Masatoshi Miyamoto

Other members were Kalford Yee, H. Chadsey Penhallow, Oscar Kirsch and Yoshito Inouye.

All judging sessions were held at Henke Hall, College of Tropical Agriculture, University of Hawaii at 7:30 p.m.

In 1961, H. Chadsey Penhallow succeeded Reverend M. Yamada as chairman. Their minutes showed that the following were later elevated to Permanent Judge status: H. Chadsey Penhallow, Robert Kennedy, J. Scott Pratt. Probationary Judges were: Hayato Tanaka, Masaya Miyao, Mrs. Alexander Bowman, Kazuma Nishimura, and Francis Ishikawa.

C. AMERICAN ORCHID SOCIETY, HAWAII REGIONAL JUDGING CENTER:

With the formal recognition of the Hawaii Regional Judging Center by the American Orchid Society in 1961, all judging sessions were moved to the Foster Botanic Gardens in Honolulu.

Meetings were scheduled every fourth Sunday of each month at 2:00 p.m.

Incidentally in 1958, the Orchid Digest Corporation (ODC) judging program was combined into the American Orchid Society judging system. Subsequently, two Supplementary Judging Centers were authorized in 1968 for Hawaii - the Hilo Supplementary Center and the Lahaina (Maui) Supplementary Judging Center.

Semiannual and annual meetings of the Hawaii Regional Judging Committee have been scheduled as per AOS requirements. These were rotated around the three judging centers.

HAWAII REGIONAL JUDGING COMMITTEE (1981)

Chairman:	Wallace K. Nakamoto
Vice-Chairman:	Masaya Miyao (Hilo)
Vice-Chairman:	Don Williams (Maui)
Secretary:	Dr. T. David Woo
Treasurer:	Shigeru Yawata
Director:	Kaoru Oka, Student Training Program

HAWAII (HONOLULU) REGIONAL JUDGING CENTER (1981)

Accredited Judges:	Yoshito Inouye
	Kazuo Kamemoto
	Wallace Nakamoto
	Kaoru Oka
	Hajime Ono
	Discocorus C. Paraz
	H. Chadsey Penhallow
	J. Milton Warne
	Dr. T. David Woo
	Shigeru Yawata
	Wilfred Yoshida
	Jon Oka
	Wilbur Chang
	Herbert Jardin (Probationary)
	John Knerr, Jr. (Probationary)
Student Judges:	Violet Yamaji
	Dora Yamamoto
	Francis Aisaka
	Susan Perreira
	Robert Perreira
	Edwin Oka

Emeritus Judges:	Oscar M. Kirsch Masatoshi Miyamoto Benjamin T. Kodama Reverend Masao Yamada

HILO SUPPLEMENTARY JUDGING CENTER (1981)

Accredited Judges:	Roy Himori Mickey Kanno Paul Okamoto Yoshiharu Tsubaki George Fukumura Rex van Delden Jack Batten Masaya Miyao Hayato Tanaka Earl Dunn William Normoyle (Probationary)
Student Judges:	Sheldon Takasaki Gregory K. Kobayashi

LAHAINA (MAUI) SUPPLEMENTARY JUDGING CENTER (1981)

Accredited Judges:	Larry Aotaki Tsugio Yamaguchi Toshio Yamaoka Tadao Himori Kenichi Nakata Robert Uedoi Rocky Racoma Don Williams Ralph Yagi Ah Hong Chee Roy T. Fukumura Joseph Kong Edmund Nishimura Manuela Rodrigues
Student Judges:	William Greenwood William Blietz Mrs. Dorothy Nishida

Standards for the judging of orchids are prescribed by the Handbook on Judging and Exhibition of the American Orchid Society, Inc. Classes of judges appointed and accredited by the AOS are as follows:

1. Student Judge
2. Probationary Judge
3. Accredited Judge

4. Senior Judge
5. Emeritus Judge
6. Retired Judge

Continuously, a student judges' training program is in effect. Also, a certified judges' proficiency maintenance program is required. Regular public lectures and seminars are also offered.

Category of AOS awards given are:

(FCC)	First Class Certificate
(AM)	Award of Merit
(HCC)	Highly Commended Certificate
(JC)	Judges' Commendation
(AD)	Award of Distinction
(AQ)	Award of Quality
(CCM)	Certificate of Cultural Merit
(CHM)	Certificate of Horticulture Merit
(CBR)	Certificate of Botanical Recognition

During 1981, the following awards were given in Hawaii:

Honolulu-Hawaii Regional Judging:
9 AM, 30 HCC, 1 JC, 3 Bronze Trophies
Lahaina (Maui) Supplementary Judging: 12 AM, 2 HCC
Hilo Supplementary Judging: 5 AM, 11 HCC

ORCHID SOCIETIES IN HAWAII The following is a list of orchid societies in Hawaii. Most of them are affiliated with the AOS. They meet regularly and membership range from 50 to 1,000. Today, the number of orchid societies continue to grow. They invariably stage annual orchid flower shows for the public and also promote plant sales at these events.

Aiea Orchid Club, Inc.
Ewa Orchid Society
Hilo Orchid Society
The Honolulu Orchid Society, Inc.
Kaimuki Orchid Society
Kunia Orchid Society
Lahaina Orchid Society
Maui Orchid Society
Pacific Orchid Society of Hawaii
Pokai Orchid Society
Wahiawa Orchid Society
Waipahu Orchid Society
Hawaii Kai Orchid Society
Orchid Society of Manoa
Waialua Orchid Society
Waianae Orchid Society

ORCHID PUBLICATIONS IN HAWAII

Hawaii Orchid Society Bulletin - Hilo, Hawaii

Bulletin of the Pacific Orchid Society of Hawaii
- Honolulu, Hawaii
Na Pua Okika O Hawaii Nei - (Orchids of Hawaii)
- Honolulu, Hawaii
Agriculture Economics Report No. 8,
University of Hawaii, College of Agriculture,
Honolulu, Hawaii
Review of Orchid Research, Hawaii Farm Science, Hawaii
Agricultural Experiment Station, University of Hawaii,
Honolulu, Hawaii

SECOND WORLD ORCHID CONGRESS A highly successful event in orchid history was held in Honolulu at the Academy of Arts on September 20, 1957, with a spectacular orchid show, aided by lectures and seminars by prominent orchidists from the world over. A highlight of the Congress was the introduction of V. Nellie Morley, which captivated all ranks of growers. Without doubt, Hawaii became recognized as a leader in the orchid world.

Details could be found in the official published proceedings and in a later report in Part VI.

SUMMARY After the introduction of orchids to Hawaii over 100 years ago, the orchid industry here today has blossomed strong and viable. Practically all general and species are grown and propagated. Germination, cloning, meri-stemming and cross pollination are on-going areas of doing business in this field. The numerous commercial establishments in operation demonstrate this observation.

We are indeed the crossroads for hobbyists and hybridizers alike, who come to Hawaii to purchase our special crosses or to add to their collection.

The American Orchid Society, Hawaii Regional Judging Centers have continued to uphold the standards with awards and recognition for excellence in hybridizing and culture, and to promote the advancement and popularity of the most beautiful and exotic of blooms - the Orchid.

Development of Floriculture in Hawaii

by J. H. Beaumont [2]

MILESTONE It is a pleasure to appear before this, the first Floral Clinic to be conducted in the Territory. This clinic represents a very definite milestone in the evolutionary changes that are occurring in the development of floriculture and ornamental horticulture in these islands. It is comparable to the graduation or commencement day at the university when the young man or woman, having received certain basic trainings and disciplines, steps out into the world to make his own way in the highly competitive business of making a living.

PRECEDENT It falls into a similar pattern to that demonstrated by the Experiment Station of the HSPA and by the PRI. In both instances the members of new and growing industries in the Territory felt the need of the research and support that could be gained by pooling their resources and working to the mutual benefit of all. That the principles upon which these institutions are founded have demonstrated their value is unquestioned. That the mutual effort of the growers, wholesalers, and retailers of floricultural products and of the University and IRAC in putting on this clinic will be of such great value as to fully justify future clinics and the development of a closer intergradation of growing and marketing of floral products is not be doubted.

MY TASK I have been assigned the pleasant task of tracing briefly the development of this important new industry. Actually the task should have been assigned to one of many others much more competent because of their longer and more direct association with floriculture and their own personal contributions to this industry.

FLOWERS IN HAWAII'S CULTURE There is no place in the world where the growing and use of flowers enters so intimately into the life of the people or where the climate and customs make it so natural to grow and use them. Armitage[1] states that "In old Hawaii, much as in the Hawaii of today, leis were used on such gala occasions as birthdays, marriages, welcomes, feasts and hula graduations. Sometimes they were worn continuously. Always there is the thought of love or affection, and best wishes accompanying the gift of the lei."

Brown[2] states "It has been well established in tradition and literature, sculpture and art that numerous and various types of leis and wreaths had been evolved on the continent from which the Polynesians came. It is quite expectable that they would have brought with them the cherished memory of these different kinds of leis ... The maile may be considered one of the oldest of all leis ... Another ancient Polynesian lei is the ginger lei made of the creamy-yellow spicy flowers of Hadychium flarum. Its great age is indicated by its occurrence throughout Polynesia wherever the plant will grow. The fondness of the Polynesians for this type is clearly indicated by its being the only plant which they carried with them to every part of Polynesia for the

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[1] George Armitage, "The Hawaiian Lei", Hawaiian Tourifax Annual, Hawaiian Tourist Bureau, 1937, pp. 64.

[2] E.D.W. Brown, "Polynesian Leis", American Anthropologist #33, 1931, pp. 615-619.

making of leis."

While by no means all leis were flower leis, it is apparent from the above references that flowers played an important role in the life of the Polynesians. It is small wonder, then, that the culture of flowers would be destined to play a much greater part in the life of the people of Hawaii.

INTRODUCTION OF PLANTS However, not to give the erroneous impression that in old Hawaii, the people, bedecked with leis, danced and sang all day, we must realize that the business of living was a matter of very serious concern. Food was limited in variety and quantity. <u>According to early accounts Honolulu and other parts were barren and dreary in the extreme.</u> It is understandable that beginning with Capt. Cook himself in 1798, followed closely by Capt. Calumet, Capt. Vancouver, Don Francisco Marin, and may others, the earlier introductions of plants and animals were mostly of a utilitarian nature. In 1813 the Marin records in his journal the planting of pineapple, orange trees, peaches, figs, lemons, beans and cabbages, as well as other plants new to the Territory. With the arrival of the missionaries and their wives and families in 1820 greater emphasis was undoubtedly placed upon ornamental plants and flowers.

Rock[3], in the introduction to his book, remarks as follows: "Numerous must have been the introductions of both ornamental and useful plants as early even as 1840, for W. L. Lee, president of the Royal Hawaiian Agricultural Society, writes on June 7, 1853: 'Let those who wish to be convinced of the value of trees look back a few years upon the burned and barren yards of Honolulu and compare them with the cool and beautiful groves of our (present) forest city.'" And in 1917 Rock states: "That it is really astonishing how many species of plants ... adorn this beautiful city; indeed an arboretum in itself."

He gives great credit to Dr. William Hillebrand, and remarks that "Honolulu owes him the profoundest gratitude."

DR. HILLEBRAND'S CONTRIBUTIONS Living proof of the contributions of Dr. Hillebrand to the beauty and culture of the Territory is to be found as the Foster Garden which formerly was his home and where he planted most of the plants he introduced during his extensive travels through the orient while making his home in Honolulu from 1865 until his return to Germany. The home and garden were acquired in 1880 by Capt. and Mary Foster and in 1930 Mrs. Foster willed the garden to the City and County of Honolulu as a botanical garden and public park. Dr. H. L. Lyon was named director and it is to him that the people owe the development of the garden since 1930 and its magnificence today.

In this connection it is interesting to note that in the Honolulu Advertiser for December 15, 1938, under the heading 70 years ago today, or December 15, 1868, the following is quoted: "During a stroll through the grounds of Dr. Hillebrand we were shown an orchid in bloom. The flower is extremely delicate in color and perfume. It is probably the first one that has bloomed in these islands."

This is the first reference to the orchid in Honolulu that has come to my attention. Perhaps we should give Dr. Hillebrand credit for this introduction.

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[3] Joseph F. Rock, <u>The Ornamental Trees of Hawaii</u>. 1917.

ORCHID CULTURE Looking further into the first origins of the floral industry or more particularly orchids we find that Ellen Williams in an article in Paradise of the Pacific, December 1934, states that orchid growing in Hawaii started about 1896 when a shipment of Phalaenopsis, and Den. superbum was brought here from the Philippines.... A couple of years later Mr. Samuel M. Damon started to import species of Cattleya in quantity. A few years later we hear that Mr. E. D. Tenney became interested and started introducing orchids, also Mr. Atherton.

The Advertiser of November 8, 1949, in its column forty years ago, 1909, states: "Few people know that there are several large and very valuable collections of orchids in Honolulu owned and tended personally by men and women with whom they have become a hobby -- for orchids are the queen of all hobbies."

These are the first reports of orchid growing in the Territory that have come to my attention to date. I hope to do more research in this field in the near future and hope that anyone having interesting facts will call them to my attention.

Mr. Damon was responsible also for the importation of many other fine plants to the Territory, among the best known being the Pirie mango and the beautiful anthurium. The latter was imported in 1889 from London and is said to have been A. andraeanum.

Thus, shortly after the turn of the century, the drab dusty Honolulu of early missionary days had metamorphosed into a virtual arboretum. A large number of the flowering trees and shrubs, of ornamentals and garden flowers, had become established. The stage was set for the second phase in the development of the floricultural industry, viz. the rapid expansion of amateur and professional interest in flower production and marketing and the gradual exploration and development of export markets.

EXPANSION OF INTERESTS Development of this second phase was slow at first because of World War I. inadequate transportation, and the many vital economic and political problems facing the new Territory. Orchids and anthuriums were still the rich man's hobby.

However, interest in flowers and floriculture was continually mounting. In 1911 a hibiscus society was formed to stimulate interest in the more desirable varieties and their use in the garden. Wilcox and Holt[4] report that the first hybrids were produced by W. M. Gifford in 1902. They give a long list of breeders and importers who had contributed to the development of this beautiful plant. This is mentioned to indicate the early interest in plant improvement by breeding which has since been applied to orchids in the Territory with even more striking results.

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[4] E. V. Wilcox and V. S. Holt, Ornamental Hibiscus in Hawaii, H.A.E.S. Bul. 29, 1913.

Following the early orchid collections built up by Mr. Samuel M. Damon and Mr. E. D. Tenney it is recorded[5] that Dr. H. L. Lyon soon after his arrival in the Territory in 1907 continued his earlier interest in orchid culture. As he developed the HSPA forestry nursery near Hillebrand Gardens he included orchids in the cultures. These as well as a large part of his very large and extensive personal collection were transferred in part to the Foster Gardens when it was established in 1931. Others, notably E. D. Tenney and Frank C. Atherton, have contributed to the outstanding Foster Garden collection.

Perhaps one of the earliest and largest importers and growers of orchids in the early 1900's was Mr. Harold Jeffs who unfortunately lies quite ill at his home at this time. I am told that he imported Dendrobiums from the Philippines and Cattleyas from South America and many plants from dealers on the Mainland. He sold plants to other collectors and flowers to local florists. About 1914 Mr. Jeffs sold his collection of more than 1000 plants to Mr. Frank C. Atherton. Unquestionably Mr. Atherton grew orchids before this time, but this acquisition greatly enhanced his collection. After 1930, and with the able assistance of Mr. Oscar Kirsch this collection became one of the outstanding orchid attractions of Honolulu.

From this time on it would be impossible for me to name the collections chronologically or in order of size and variety. As a matter of fact important contributions already may have been omitted. I hope they will be called to my attention.

BOOM Interest in orchid culture mounted steadily until in 1930 it more or less assumed the proportions of a boom. This was the transition period between the time of the few and exclusive collectors to the many smaller but enthusiastic growers and to the beginnings of real commercial development. J. Milton Warne in the Honolulu Advertiser of January 26, 1936 writes that "in five years the number of collections has risen from only a few until now there are will over 100 collections worthy of the name."

REGISTRATIONS This intense interest is demonstrated by the registrations of the new orchid hybrids given in Sanders' Complete List of Orchid Hybrids for 1946, assuming that in the earlier days it would require 10 years or more to raise seedlings to flowering. I will list a few of the names in chronological order under some of the larger genera up to the year 1946. Occasional names may have been overlooked inadvertently and if so I must apologize. However, perhaps this partial list is of interest in indicating the large number of growers who undertook orchid breeding almost simultaneously from about 1930 or a few years earlier.

Brassocattleya (Brassavola x Cattleya)	
Hirose	1941, 1944
T. Kodama	1944 (7)[6], 1945 (3)
R. Warne	1945 (2)

[5] J. P. Martin, The Foster Garden Orchid Collection, Pacific Orchid Society 4 Number 2, July 1945.

[6] Number in parentheses indicates the number of registrations in the year indicated. The date alone indicates one registration.

Brassolaeliocattleya	
Lyon	1941
Kodama	1944 (3), 1945 (3)
Tanaka	1945
Warne	1945
Cattleya	
Atherton	1939, 1942, 1945
Williams	1939
Hirose	1945, 1944 (2)
Kodama	1944 (3)
Robert Warne	1944
M. Warne	1945
Dendrobium	
Miss Ellen Williams	1938, 1941 (2), 1943
Atherton	1940, 1942, 1945
McCoy	1943 (2)
Nuuanu	1944
Goo	1945 (4)
Hirose	1945
Kodama	1945
Epidendrum	
Montague Cooke	1945
Hirose	1945
Laeliocattleya	
Williams	1940, 1943
M. Warne	1941, 1943, 1944, 1945
Hirose	1941, 1944 (2)
Atherton	1943
Rolla Thomas	1943
Takami Kodama	1944 (5), 1945 (9)
Foster Gardens	
Oncidium	
Atherton	1940 (3), 1942, 1943, 1944, 1945
Kihara	1945
Phalaenopsis	
Atherton	1938, 1941 (2), 1942 (2), 1943, 1944 (2)
Sideris	1943, 1944
Shipman	1944
Renantanda	
Atherton	1944, 1945
Carter	1945
Renanthera	
R. Warne	1942

Spathoglottis	
Atherton	1939, 1943
Nuuanu	1940, 1943
Lyon	1941 (5), 1944 (2)
Carter	1943, 1944
Vanda	
Shipman	1940, 1944, 1945 (4)
Gillmar	1943
Lyon	1944
Sumner	1945
Atherton	1945
Cummins	1945
Foster	1945
Tanaka	1945
Vandaenopsis (Phal. denevei x V. sanderana)	
Atherton	1939

But this list represents merely the first beginnings of active and constructive hybridization and orchid improvement. It was reported recently by the Registration Committee Chairman of the Pacific Orchid Society that 100 names of new hybrids had been sent to Sanders in 1950 for registration and that already this year, 1951, which is hardly half over, 100 more have already been submitted.

The 1946 list of registrations from which I have quoted does not indicate the number and variety of the collections whose owners did no breeding work. It does not necessarily indicate either that the person listed actually made the cross since flasks of unnamed seedlings were imported from mainland sources. It does not indicate the experimentation, trials and errors, disappointments and failures. More particularly it does not show some of the early successes, many of which were never registered. This is particularly true of some of the early spathoglottis, phalaenopsis and vanda hybrids, some of which had already been named or which were submitted too late to receive priority or perhaps which were never submitted at all.

The list, with the close grouping of dates, does indicate that in the preceding 10 to 15 years or about 1930 to 1935 a large number of people were building large and varied collections and were enthusiastic hybridizers. For example it was in 1928 the Mr. T. Kodama and Dr. Harry Kurisaki laid the first foundations of the Kodama Nurseries which were commercialized in 1935. I am told that the first sowing or orchid seed was on September 27, 1935.

INTEREST IN HAWAII AND KAUAI Interest in culture and hybridizing of orchids was by no means limited to Oahu. Mr. Takami Kono is quoted as follows from the Hilo Tribune of October 28, 1945: "The history of orchid growing in Hilo goes back to Herbert Shipman who was Hilo's first orchid grower. His first plant acquired in 1907 was a Phal. schillerana which is still among his vast collection of orchids. Next came the late Dr. E. Yoshimura who influenced many people to take up orchid growing. Others who were among the first were: S. Kawasaki, Maj. Lester Bryan, Dr. E. Mitchell, Alex Anderson, Herbert Small and Y. Hirose."

Strangely enough the Garden Island which of late may have lagged somewhat in its orchid interests was at the forefront in the early days (about 1913) due to the active interest and extensive collections of Dr. Kimura of Hanapepe, and Dr. Mukai and Mr. Taketa of Waimea. Mr. T. Makashima who gained experience from Dr. Kimura and Dr. Mukai was later gardener for Miss Rose Sylva and has since ben regarded as one of the best Cattleya growers in Honolulu.

HISTORY OF VANDA MISS JOAQUIM The history of the most important orchid in Hawaii -- V. Miss Joaquim -- does not seem to be too fully recorded. In the Florists Exchange and Horticultural Trade World for August 24, 1935 under an article entitled "Orchids in Hawaii," Dr. H. L. Lyon is quoted as follows: "He identified the species, or rather hybrid, as V. Miss Joaquim, the result developed in Singapore, by crossing V. teres and V. hookerana... It is easily propagated by cuttings, he asserted, and grows in open gardens in full sunlight... At least it has for him in the 10 years since he brought it to Honolulu from Singapore."

Thus we can assign 1925 as the date of the introduction of V. Miss Joaquim to the Territory providing of course that the article was printed the same year the interview was given.

The following which also is quoted from the above article seems almost like a prophecy of what has actually developed today. "Orchids to everybody. Orchids growing over the trees in people's front yards, and standing up in the sunlight of their gardens. Orchids as plentiful as poppies in California. Not only that, but orchids cut in Hawaii will stand transportation to any part of the U.S. and arrive in good condition."

Perhaps the first to undertake mass propagation of the V. Miss Joaquim were the Warne Brothers of Honolulu. Mr. Milton Warne tells me they received their first cuttings from Mr. Alex Anderson and others from Mr. Herbert Shipman, both of Hilo, as early as 1931. In 1935 they had more than 300 plants and the next year the number had increased to 1100.

Mr. Robert Warne recounts his first attempts and difficulties of merchandising V. Miss Joaquim blossoms in 1941, the same year that on Lei Day he received a $25 prize for a lei made of Joaquim blossoms. There seems to be no question that at this period some of the Hilo growers also had begun the propagation and merchandising of the V. Miss Joaquim.

EXPANSION SINCE 1941 The expansion of the orchid industry since 1941 carrying with it the tremendous development of other floricultural items particularly the anthurium, ti, croton, ginger, heliconias and wood roses is so recent it needs no recounting. The recent war, a ready mainland market and speedy airplane transportation have enabled commercial growers to expand rapidly and have allowed many others to enter the field both as amateurs and as small business men. Together they may be numbered in the thousands.

Orchid growing is no longer the rich man's hobby but enriches the life of thousands of interested and enthusiastic growers.

Thus the growers, the materials, the climate, the enthusiasm, the transportation facilities, and the ability to grow the plants and flowers, are all present. It remains for the future to reveal the ultimate stature and importance

to which this new industry will attain.

The threshold of the third phase of the development of this new and robust industry, that of attaining the status of a basic and stable industry, is here. This clinic, emphasizing as it does the packaging, shipping, and merchandising of floricultural products for mainland markets is ample proof of this.

A Short History of Orchids In Hawaii

by Loraine Kuck [3]

The tale of Hawaii's progress to preeminence in the world of orchids -- and today its is the number one spot in the world -- has curious and almost fantastic angles.

It includes such things as business achievement reaching around the world, and scientific accomplishments of outstanding importance. A hilarious sidelight to some of these accomplishments is that they were attained by highly unscientific methods.

It is a tale of cooperation and goodwill and democracy among many groups and many peoples of varying backgrounds. And with it all, it is the record of a gorgeous hobby that has paid big dividends in fun and fame, in beauty -- and even in hard cash.

Just how this has come about is a little hazy even to people who have long lived here and may have been part of the process themselves. But the story can be clearly traced if one will take the trouble.

Hawaii started its career as a land of orchids with three little ciphers. There are no brilliant and wonderful native orchid plants rioting over the trees and rocks of these islands -- as there are in tropical America, or in southern Asia or in the East Indian Islands.

Hawaii, technically, does have three little native orchid species. All, it is said, are small, inconspicuous plants with dirty brownish flowers. They grow only in inaccessible mountain bogs, where a few botanists have seen them. But no one else would take a second look even if they grew close at hand.

The first people to bring orchids to Hawaii undoubtedly were the early Chinese immigrants. In China, several species of small Cymbidiums (generally called "lan") have been favorites for centuries.

Their graceful grass-like foliage has provided what is probably the most popular plant subject for painting after bamboo. One of the chief treasures of the Honolulu Academy of Arts is a scroll painting of these orchids.

Many older Chinese still cherish their pots of "lan," chiefly the "Kuan Yin lan" which probably is Cym. aloifolium.

The first Occidental orchid collection in Hawaii was established by the Damon family, about 60 years ago.

In the first decades of this century a few other wealthy people also built up orchid collections. E. D. Tenney, the Shipmans of Hilo, Frank Atherton and Walter Dillingham were among them. Some of these owners imported trained orchid gardeners to care for their plants, and the hobby was carried on about as it is on the mainland.

By the late 1920s, however, quite a few people, who were only comfortably well off, had discovered that one doesn't need to be a millionaire to grow

orchids in Hawaii.

The all year even temperature that varies only between 60 and 90 degrees, the bright sun and the moist air, especially in the valleys, combine to make outdoor orchid culture a simple thing compared to the elaborate undertaking which it is in other climates.

Today, it is estimated, there are some 3,000 serious growers of orchids on Oahu alone, with collections of from 10 to 10,000 plants. There also are many other thousands of people with just a few plants, tucked away in the garden perhaps, or growing in pots on some window sill. This almost universal orchid interest never would have developed by itself out of the fairly conventional situation of the '20s. But a number of singular, almost unique circumstances combined to bring it about.

These have been analyzed by William Kirch, who has contributed a good many of the facts contained in this article, and who himself has made important contributions to the story of Hawaiian orchids.

Mr. Kirch believes that underlying the whole Island situation are certain facts about Hawaii's people and their way of life.

The main groups which make up Hawaii's population have behind them a traditional love of gardens and fine horticulture.

It might be noted that a Hawaiian predecessor to orchids in plant interest was the hibiscus. This interest reached its height in the early '30s, and began to wane when orchids started to take over.

Perhaps the second important factor in the story of Hawaii's orchids is the way in which the sugar and pineapple business are run. Both conduct extensive research programs and have on their staffs eminent scientists in many fields. From time to time certain of these men have been sent to other parts of the tropical world to study and collect materials.

It was Hawaii's good fortune that among these men were a number who were already orchid enthusiasts. So when they found themselves in parts of the world where orchids grow wild, they took occasion to gather up rare specimens and send them home for their own collections.

Some plants they gathered themselves in such jungles as those of Malaya, Java or Ceylon. Others they may have bought from natives in such places as Brazil, Guatemala or Guiana. Getting them back safely to Hawaii in the days before air travel was often a real achievement.

These men included Dr. Harold Lyon of the HSPA, Dr. Walter Carter, Dr. Christos Sideris of the Pineapple Research Institute, Dr. J. H. Beaumont of the University of Hawaii, and others. Some of the plants they introduced never before had been seen in American or European collections, and many others were new to Hawaii.

Among those which came to Hawaii in this was a little hybrid Vanda from Singapore known as "V. Miss Joaquim." The flower proved to be remarkably long lasting and easy to grow, and to be useful in many ways.

Today, thousands of people all over the United States, who had never expected to own an orchid blossom, have had one of these "baby orchids" given to them. And almost every tourist who arrives in the islands is decorated with an orchid lei made of these little flowers.

They are grown in fields, literally by the acre, and are exported, in the course of a year, probably by the millions.

It was natural for some of the scientific men in the experiment stations of Hawaii, who were accustomed to the improvement of agricultural crops by hybridization, to think of applying this method to orchids.

Hybrid progeny, with the characteristics of two differing parents to draw upon, are often amazingly different from either. In flowers they frequently combine colors and forms to produce individuals which are larger, brighter and generally more beautiful than either parent.

The growing of orchids from seed used to be extremely difficult. Orchid seed is as fine as dust. In nature, its growth requires the help of a symbiotic fungus.

But in the early '20s a new method had been worked out at Cornell University, which suddenly made it easy to grow orchid seeds.

This method made use of the techniques of bacteriology, in which a nutrient solution, solidified by agar, in sterile flasks, provided a safe medium on which the tiny seeds could start and grow.

By following this method in Hawaii, new orchid seedlings began to be produced, and the stage was ready for another step in Hawaii's orchid progress.

This was a part played by commercial orchid growers. In the '20s, a number of plant nurseries, finding the sale of orchids good, began to specialize in these plants. Among them were T. Kodama, Ellen Williams and, in Hilo, Y. Hirose.

Several growers who marketed the blossoms came to Hawaii about the same time, among them Robert and Milton Warne.

A grower who entered the commercial field a little later, but who has been a major force in Hawaii's orchid history is Oscar M. Kirsch. He first arrived in the Islands to take care of the Atherton collection.

The Hawaiian interest in orchids also attracted orchid salesmen from the mainland. Among them was William Kirch, representing Armacost and Royston, one of the largest firms in the U.S. He remained in Hawaii and later formed an organization of growers which now markets orchid plants all around the world.

The interest early shown in Hawaii in acquiring new and different kinds of orchids, and experimenting with them, has been another important part of the Hawaiian story. This attitude contrasts with that of many other areas where interest still continues to center almost entirely in the big and showy Cattleyas.

The many available varieties in Hawaii provided extensive breeding stock when the time came for that. Three groups have proved of most importance so

far in Hawaii, the Dendrobiums, Vandas and Phalaenopsis.

All factors now were ready for the sudden ballooning of orchid interest which brought it to its present fabulous proportions. The establishment of commercial air transportation was the first big stimulating factor. This opened up world flower and plant markets to Hawaiian-produced materials.

Certain commercial orchid growers, feeling they could never by themselves produce enough flowers to fill the demand, conceived the idea of making V. Miss Joaquim production into a supplementary backyard business. They either sold very cheaply or gave away cuttings of this plant, promising to buy back the flowers. In Hilo this has resulted in the Big Island's becoming known also as the Orchid Island.

Another big stimulant to commercial growing was the easy money and big demand which came with the defense workers for a few years before the war, and after it began from the service men who were looking for gifts to send home.

When this big demand dropped away, with the departure of such people after the war, the flower production business came upon hard times. The result was to bring many orchid plants into the market at very low prices, helping to spread orchid growing more widely as a hobby.

Also helping to interest many people was the sale of "community pots." These are small pots containing up to a dozen inch-high orchid seedlings. They were sold very reasonably. Hundreds of people started growing orchids with an investment of two or three dollars.

Of course they had to wait several years for these plants to flower, and there was always a gamble as to whether they would get something wonderful or duds. Both happened, of course.

The seedlings made available in community pots were the result of the earlier hybridization experiments. When these first crosses began to flower, they were often so wonderful that it was evident Hawaii had hit some kind of jackpot.

The first hybrid from Hawaii was registered with the Royal Horticultural Society in London in 1938. It was Den. Hawaii, produced by Wilhelmina Tenney and Ellen Williams. By 1954, when the Pacific Orchid Society published a list of the Hawaiian-registered hybrids, 1938-1954, there were nearly 1,200 of them. And the names of some 224 people are given in connection with the list.

The scientific centers continued to work along logical and reasonable lines. But there was also a good deal of free wheeling among people without much knowledge or understanding.

Scientist might try, for example, to improve a rose by crossing various rose. But it would not occur to them to try crossing a rose bush and a peach tree (which is also a member of the rose family). But in effect this is what the Hawaiian amateurs did. They "just put two flowers together."

The results have sometimes stumped the scientists, for some of the crazy experiments worked. Some of the best of the local hybrids were produced this

way.

A word should be put in here about what the University of Hawaii has contributed to Hawaii's orchid picture. By doing research on the various phases of growing and shipping, it has helped greatly in maintaining orchids as a stable business and a satisfying hobby.

PART II.

ORIGINAL MANUSCRIPTS

AND

EARLY RECORDS

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Letter from Gordon W. Dillon, Executive Secretary, American Orchid Society, Inc., October 31, 1955

AMERICAN ORCHID SOCIETY, INC.
Botanical Museum of Harvard University
Cambridge 38, Massachusetts

October 31, 1955

Mr. Ben Kodama, Secretary
Oahu Orchid Growers Association
1039 Kamehameha IV Road
Honolulu 45, Hawaii

Dear Mr. Kodama:

It is with great pleasure that I can inform you that the Board of Trustees of the American Orchid Society at their meeting in Indianapolis, Indiana, on October 8, 1955, voted to certify as American Orchid Society Judges, the seven candidates recommended by your organization, and in addition, Mr. Herbert C. Shipman.

The available American Orchid Society Certified Judges in Hawaii then are:

William Kirch	3023 Waipuna Rise, Honolulu 14
Oscar M. Kirsch	2869 Oahu Avenue, Honolulu 14
Benjamin Kodama	1039 Kamehameha IV Road, Honolulu 45
Masatoshi Miyamoto	617 Libby Street, Honolulu 17
John K. Noa, Sr.	3394 Waialae Avenue, Honolulu
Herbert C. Shipman	P.O. Box 807, Hilo
J. Milton Warne	260 Jack Lane, Honolulu
Robert E. Warne	275 Jack Lane, Honolulu

Each of these judges has been notified by letter and has been sent a copy of the American Orchid Society's revised edition of the Handbook on Judging and Exhibition; they are entitled to serve and recommend awards for the American Orchid Society in accordance with the regulations in the Handbook.

At any time that American Orchid Society judging is desired, it is necessary first to secure the services of a minimum of three certified judges, and then to inform my office, requesting judging and the judging kit, at the same time informing us of the judges who will serve. Full details on this will be found in the Handbook on Judging and Exhibition on page 40.

All judges serve without recompense from the American Orchid Society. If expenses in travel, etc. are incurred, they must be met either by the individual judge, judges, or the judges should be reimbursed by the show.

If there are any further questions at any time on this matter, or if I can be of service in any way in the future, please be assured of our sincere cooperation.

Cordially,

Gordon W. Dillon
Executive Secretary

GWD/g

Minutes of Hawaii Judging Committee, December 27, 1961

American Orchid Society, Inc.
Hawaii Regional Judging Committee
Minutes of the Committee meeting of December 27, 1961

The meeting was called to order by Rev. Masao Yamada at 8:43 p.m. at Henke Hall, University of Hawaii.

REPORT
The Nominating Committee composed of Oscar Kirsch, Chairman, William Kirch, John Noa, Ben Kodama, and J. Milton Warne charged with two specific assignments (1) propose a slate of officers and (2) study and recommend probationary judges to permanent status, report as follows:

Recommendation to Permanent Status
H. Chadsey Penhallow
Robert Kennedy
J. Scott Pratt

To Remain as Probationary Judges
Hayato Tanaka
Masaya Miyao
Mrs. Alexander Bowman
Mazuma Nishimura
Francis Ishikawa

Proposed Mr. H. Chadsey Penhallow as Chairman of the Committee.

On motion duly made and carried the recommendations were approved and Mr. H. Chadsey Penhallow was elected Chairman of the Hawaii Regional Judging Committee. William Kirch stated that the Committee as a group will set us rules and procedures for the conduct and operation of the Monthly Judging Sessions.

WORKING COMMITTEE. Mr. J. Milton Warne, Chairman, Ben Kodama, and John Noa were appointed to formulate and recommend rules and procedures for the Regional Judging Committee.

A VOTE OF THANKS was extended to Rev. Masao Yamada for bringing us thus far in American Orchid Society, Inc. Judging in Hawaii.

SCREENING COMMITTEE. Mr. William Kirch, Chairman, Masatoshi Miyamoto, Ben Kodama, and Oscar Kirsch were appointed to screen prospective judges for recommendation to the American Orchid Society, Inc. to serve as probationary judges.

It was suggested that a study be made of the dates and times of AOS Judging in the various regions with particular emphasis on Regional Judging in California and the West Coast.

Meeting adjourned at 9:25 p.m.

Minutes of Hawaii Regional Judging Committee, January 24, 1962

American Orchid Society, Inc.
Hawaii Regional Judging Committee
Minutes of the Committee meeting of January 24, 1962

The meeting was called to order by Chadsey Penhallow, Chairman, at 8:40 p.m.

Present at the meeting were: J. Milton Warne, Robert Kennedy, John Noa, Benjamin Kodama, Chadsey Penhallow, Jeffrey Shigezawa, and Isao Takemoto.

The minutes of the meeting of December 27, 1961 was approved as circulated.

Working Committee Report. The report of the committee consisting of procedures, and rules and regulations governing the Regional Judging Committee was submitted by its Chairman, J. Milton Warne. Considerable discussion followed and the report was received as amended. A copy of the amended report is attached herewith and made a part of the minutes. As soon as sufficient copies are made they will be circulated for the information and consideration of the other members of the Committee.

Benjamin Kodama was instructed to take a copy of the report to the next meeting of the American Orchid Society, Inc. Committee on Awards to be held in Los Angeles, California in February, 1962. It was further recommended that this report be presented to the Committee on Awards for their information and possible revision or modification.

A discussion of the minutes of the AOS Committee on Awards held on December 14 and 18, 1961 followed. Pertinent problems embodied in the minutes were called to the attention of those present for information and clarification.

The meeting adjourned at 10:30 p.m.

APPROVED

H. Chadsey Penhallow, Chairman

Respectfully submitted,

Isao Takemoto, Clerk

Letter from Gordon W. Dillon, Executive Secretary, Editor
June 7, 1962

AMERICAN ORCHID SOCIETY, INC.
Botanical Museum of Harvard University
Cambridge 38, Massachusetts

June 7, 1962

Mr. H. Chadsey Penhallow
Box 1206
Ewa, Oahu, Hawaii

Dear Mr. Penhallow:

It gives me great pleasure to inform you that the Board of Trustees of the American Orchid Society, Inc., at their recent meeting in Portland, Oregon, on Friday, May 25th, 1962, upon the recommendation of the Committee on Awards, voted to change your status as an American Orchid Society Judge from that of a probationary appointment to indefinite tenure, in effect giving you full recognition as a "Permanent" American Orchid Society Judge.

All appointments as American Orchid Society Judge are reviewed from time to time, and such appointments may be cancelled for reasons of resignation, lack of participation, inadequacy or similar valid reason. We welcome you, therefore, to participate in American Orchid Society Judging as frequently and as widely as is possible.

With appreciation for your past service and looking forward to continued participation, we are

Sincerely,

AMERICAN ORCHID SOCIETY, INC.

Gordon W. Dillon
Executive Secretary

GWD/g

American Orchid Society Regional Judges, Hawaiian Area, 1961

NAME	STATUS	ADDRESS
Austil Keller	Accredited Judge	3709 Round Top Drive Honolulu 14, Hawaii
William Kirch	Accredited Judge	3023 Waipuna Rise Honolulu 14, Hawaii
Oscar Kirsch	Accredited Judge	2869 Oahu Ave. Honolulu 14, Hawaii
John Noa	Accredited Judge	41-668 Bell St. Waimanalo, Hawaii
J. Milton Warne	Accredited Judge	260 Jack Lane Honolulu 17, Hawaii
Robert Warne	Accredited Judge	4 Puukoni Pl. Kailua, Hawaii
Benjamin Kodama	Accredited Judge	1039A Kam IV Rd. Honolulu 17, Hawaii
Masatoshi Miyamoto	Accredited Judge	85-576A Waianae Valley Rd. Waianae, Hawaii
Herbert Shipman	Accredited Judge	P.O. Box 1240 Hilo, Hawaii
Robert Kennedy	Probationary	1439 Alencastre St. Honolulu 16, Hawaii
Masaya Miyao	Probationary	95 Mano St. Hilo, Hawaii
J. Scott Pratt	Probationary	45-1033 Pahuwai Pl. Kaneohe, Hawaii
Hayato Tanaka	Probationary	277 Haikai St. Hilo, Hawaii
Francis Ishikawa	Probationary	P.O. Box 1240 Hilo, Hawaii
Kazuma Nishimura	Probationary	9 W. Papa Ave. Kahului, Hawaii
Mrs. Alexander Bowman	Probationary	P.O. Box 1142 Hilo, Hawaii
H. Chadsey Penhallow	Probationary	P.O. Box 1206 Ewa, Hawaii

Letter from H. C. Penhallow, Chairman AOS Regional Judging Committee, Hawaii Area September 26, 1962

Ewa, Hawaii
September 26, 1962

Mr. Toichi Arai
Hui Okika O Hilo
347 Ainako Ave.
Hilo, Hawaii

Dear Mr. Arai:

Your letter in regard to the Hilo-Hawaiian O.S., Inc. Show arrived at Ewa on Monday and I am forwarding herewith a list of AOS Judges for your consideration. It is my understanding that you already have the Judging Kit and Trophy.

Accredited Judges:

Austil Keller	3709 Round Top Drive, Honolulu 14, Hawaii
William Kirch	3023 Waipana Rise, Honolulu 14, Hawaii
Oscar Kirsch	2869 Oahu Ave., Honolulu 14, Hawaii
J. Milton Warne	260 Jack Lane, Honolulu 17, Hawaii
Benjamin Kodama	1039A Kam IV Rd., Honolulu 17, Hawaii
Robert Kennedy	1439 Alencastre St., Honolulu 16, Hawaii
J. Scott Pratt	45-1033 Pahuwai Pl., Kaneohe, Hawaii
John Noa	41-668 Bell St., Waimanalo, Hawaii
Robert Warne	4 Puukani Pl., Kailua, Hawaii
Masatoshi Miyamoto	85-576A Waianae Valley Rd., Waianae, Hawaii
H. Chadsey Penhallow	P.O. Box 1206, Ewa, Hawaii
Herbert Shipman	P.O. Box 1240, Hilo Hawaii

Probationary Judges:

Masaya Miyao	95 Mano St., Hilo, Hawaii
Hayato Tanaka	277 Haikai St., Hilo, Hawaii
Francis Ishikawa	P.O. Box 1240, Hilo, Hawaii
Mrs. Alexander Bowman	P.O. Box 1142, Hilo, Hawaii
Kazuma Nishimura	9 W Papa Ave., Kahului, Maui, Hawaii

I will see most of the judges on this island tonight and will inform them of your request. For your information, Mr. G. Gerguson Beall, Past President of the American Orchid Society, Inc. will be in Hilo during the conference and is also an Accredited Judge. I feel sure that he would be glad to be one of the Judges.

Don't feel badly about the state of your society's finances and the inability to pay for transportation. It is not common practice to furnish this courtesy. Your offer to pay registration and banquet fees is most generous.

Yours truly,
H. C. PENHALLOW
Chairman, AOS Regional Judging Committee
Hawaiian Area

Minutes of Hawaii Regional Judging Committee, October 24, 1962

American Orchid Society, Inc.
Hawaii Regional Judging Committee
Minutes of the Committee Meeting October 24, 1962

Meeting was called to order at 8:20 p.m. at Henke Hall with the following judges present:

J. Milton Warne
Oscar Kirsch
Benjamin Kodama
Wm. Kirch
Masatoshi Miyamoto
J. Scott Pratt
H. C. Penhallow

Recent correspondence pertaining to this committee, the September and October minutes for meetings held by the Committee on Awards, Preliminary Report of the Committee on Awards and the report of the Subcommittee of the Orchid Evaluation Course were reviewed for the benefit of those present.

After referring to item three of the September minutes, Supplement III of the Register of Awards was circulated and the judges were encouraged to obtain copies for their personal use.

While discussing item nine, also in the September minutes, relative to participation by the judges in contributing articles on judging when asked, recent correspondence between Merle Rienihka, Gordon Dillon and Oscar Kirsch was reviewed with the committee. This request was for an article on suggested standards for judging Vanda Nellie Morley. In keeping with the suggestion made by Oscar Kirsch, a composite will be prepared from the ten certified judges. The chairman appointed Oscar Kirsch and Ben Kodama to prepare a draft for comment by the remaining eight judges. The final product to be prepared at a special meeting scheduled for Thursday, October 8, 1962 at Henke Hall. The time has been set for 7:30 p.m.

The Chairman stated that in an effort to prevent confusion and to consolidate rules and directives developed by the Committee on Awards and by the Hawaiian Regional Committee, an attempt will be made to consolidate and publish this information by the end of the year for local use.

A general discussion then followed in an effort to obtain unified thinking on the following four points.

1. Floriferousness - In judging plants with more than one spray, do the judges take into consideration the additional sprays or just the one being judged?

   The unified opinion was to give credit for the productivity of the plant and consider all sprays and not just the one spray under consideration when scoring for floriferousness.

2. Judging a spray or a spike of flowers - It was agreed that the practice of singling out one particular flower on the spray or spike

for evaluation of form, color, size, substance and texture would be discontinued and evaluation would take into consideration all flowers in the spray or on the spike.

3. Cut flowers - It was agreed that cut flowers would not be judged without the whole stem. This would eliminate the opportunity of submitting a single cattleya flower cut above the node.

4. Damaged Cattleya Flowers - The question was raised as to whether or not to judge a spike containing more than one flower, when one or more of the additional flowers showed signs of damage of any sort.

The discussion that followed brought out two general opinions as follows:

A. Any cattleya spike containing an imperfect flower should disqualify the rest of the flowers on the spike.

B. As long as there remained a judgeable flower on the spike, the plant submitted for judging should be judged.

In view of the fact that a unified opinion could not be reached, a final decision on this matter has been postponed.

Before adjourning the meeting all of the four points were reviewed with the judges present and unanimous agreement reached on the first three points with a divided opinion on the fourth.

Meeting adjourned 9:40 p.m.

H. C. PENHALLOW, Chairman
AOS Regional Judging Committee
Hawaiian Area

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PART III. ORIGIN OF ORCHID SOCIETIES

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Brief History of the American Orchid Society

by Gordon W. Dillon [4]

The American Orchid Society was officially founded on April 7, 1921, in Boston, Massachusetts. Even earlier, the first meeting for the purpose of forming an orchid society was held on March 25, 1920, at Horticultural Hall, the home of the Massachusetts Horticultural Society in Boston, Massachusetts, with a large representative gathering of the private and commercial interests.

Mr. Thomas Roland, of Nahant, Massachusetts, was elected Chairman of the meeting and Mr. Gustave Thommen, Secretary. After discussion, Mr. Alfred J. Loveless, of Lenox, Massachusetts, moved that the American Orchid Society be organized. This motion was seconded by Mr. W. A. Manda, of South Orange, New Jersey, and it was unanimously voted to proceed with the organization. Temporary Officers were nominated and elected as follows: President, Thomas Roland; Secretary, William N. Craig; Treasurer, Alfred J. Loveless; and a committee of three was appointed to present a list of fifteen to form a committee to draw up bylaws for adoption at a later meeting.

This organization meeting was held at Horticultural Hall, Boston, on April 7, 1921, for the purpose of completing the organization. Thirty-six persons were present. Mr. Roland again presided and Secretary Craig, read the Constitution and Bylaws, prepared by the local committee, which were unanimously adopted.

The charter membership of the American Orchid Society total one hundred at the end of 1921, including private growers, professional growers, and outstanding students of orchidology from the United States and Europe. Most of the active membership resided in the North Atlantic States, with a sprinkling from the midwest, California, Canada, and England. There were twenty-five life members and seventy-five annual members. A list of the charter members can be found in the Society's first publication (see below); we might note in passing that not a single charter member was from Hawaii.

The first President of the American Orchid Society was Mr. Albert C. Burrage, of Beverly Farms, Massachusetts. A graduate of Harvard Law School, and a practicing lawyer, he became interested in copper mining and amassed a fortune from the development of new processes for the treatment of low-grade copper ores. He was elected President of the Massachusetts Horticultural Society as well as of the American Orchid Society in 1921 and, in 1922, received America's highest horticultural award, the George R. White medal of honor for the establishment, at his home in Beverly Farms, of the greatest collection of exotic orchids ever assembled in the United States. Mr. Burrage also assembled a very complete library of botanical and horticultural publications, the section devoted to orchid literature being especially comprehensive. Mr. Burrage served as President of the American Orchid Society until 1929, at which time ill health forced him to resign. He remained a Trustee of the American Orchid Society until his death, June 28, 1931. The first Secretary of the Society was Mr. Alfred J. Loveless, who served in that post until his resignation on May 26, 1925. He was succeeded by Mr. Thomas W. Nason, who held that post until March 1931, at which time he was succeeded by Dr. David Lumsden, of the United States Department of Agriculture, in Bethesda, Maryland.

Meetings of the Society began rather sporadically but eventually assumed the nature of quarterly Trustees' Meetings, usually held during the four seasons at the homes of prominent members. All members of the American Orchid Society were invited to participate in the Trustees' Meetings, as circumstances permitted. Such quarterly meetings were held each year through 1955, at which time it was agreed that, in order to increase attendance at each meeting, the Trustees' Meetings should be reduced to two each year, one in the spring and one in the fall, with the general policy that one meeting be east of the Mississippi River and one west of the Mississippi each year.

A design for the Society's seal and gold medal was prepared by Mrs. Oakes Ames, in March 1923, and approved by the Trustees in November 1923. They voted to have a large and small die made, with medals to be issued in gold, silver and bronze. The first medal was given to Mrs. Ames on May 9, 1924, in recognition of her designing of the medal.

The first publication of the American Orchid Society was issued December 1921 and entitled, "Bulletin No. 1." It was, in effect, a yearbook, for it included a list of the officers of the Society, the Bylaws of the Society, and the list of one hundred charter members. Yearbooks were published occasionally -- in 1925, 1927, 1932, and 1937 -- until the appearance of the 1949 Yearbook which began the policy of publication every two years.

The first annual report of the American Orchid Society appeared in 1922, being to April 30, 1922, with the Secretary's report dated August 1, 1922. Membership had reached 115, with distribution as follows: Massachusetts fifty-two, New Jersey sixteen, New York seventeen, California seven, Pennsylvania eight, England three, Canada one, and one each in the states of Michigan, Illinois, Connecticut, Delaware, Vermont, Nebraska, Indiana, Maine, Missouri, Kentucky, and Florida. Again Hawaii was not represented; in fact, it was not until 1932 that Hawaii became represented through the membership of Mr. Frank C. Atherton and Mr. J. K. Butler, both of Honolulu.

The first book published for the Society was "An Enumeration of the Orchids of the United States and Canada," by Professor Oakes Ames, which appeared in 1924. It was published for the American Orchid Society and had its origin at the Society's second meeting on September 22, 1921, at which time it was "decided to publish a list of American native orchids, it being appropriate as the first effort of the American Orchid Society." The third meeting of the Society was held in New York, at the American Museum of Natural History, on November 4, 1921, at which time Mr. Oakes Ames presented the Society with an exhaustive list of native orchids and promised that it would be "the most complete list of American orchids ever published." It was to be illustrated by Mrs. Ames and distributed to the members when ready.

The American Orchid Society Bulletin began publication in June 1932, under the editorship of Dr. David Lumsden, of Bethesda, Maryland, who also served as Secretary of the Society. It was published quarterly, each issue containing about twenty-four to twenty-eight pages. Volume numbers overlapped two year, Volume I, No. 2 being dated September 1932, Volume I, No. 3 being December 1932, and Volume I, No. 4 being March 1933, Volume II began with June 1933.

The American Orchid Society Bulletin, at the invitation of Prof. Oakes Ames, was moved to the Botanical Museum of Harvard University in June 1940, at

which time it began as a monthly magazine, under the editorship of Dr. Louis O. Williams. Each volume of twelve issues of the Bulletin contained about 320 pages. The volumes still overlapped two years, Volume IX, No. 1 being dated June 1940, while Volume IX, No. 12 was dated May 1941. It was not until 1946, with Volume XV, that a change was made. Volume XV beginning June 1946 terminated in December 1946, with only seven issues. From then on, beginning with Volume XVI, No. 1, which appeared in January 1947, the volumes ran concurrently with the calendar year.

The first National Orchid Exhibition was undertaken by the American Orchid Society in conjunction with the Massachusetts Horticultural Society, at Horticultural Hall, Boston, Massachusetts, on May 9, 1924. It was a tremendous success, widely reported in the press and in horticultural magazines. It was but the beginning of a series of such orchid exhibitions staged by the American Orchid Society in various parts of the country. The second was held in Philadelphia, in May 1926, and a third in New York, in May 1928. The last one conducted by the American Orchid Society was the Eighth National Orchid Exhibition held on the estate of Joseph E. Widener, at Elkins Park, Pennsylvania, on May 11-13, 1938.

The first American Orchid Society awards to plants were issued in 1932. There were four categories: First Class Certificate, Award of Merit, Cultural Commendation and Vote of Thanks. It was decided that origin of plants would not enter into the awards and that judgement would be based solely on the merits of the plants entered. This was at the Trustees' Meeting of April 29, 1932, at the same time that final approval was given to the publication of the American Orchid Society Bulletin, Volume I, No. 1. The first awards were actually made at this April 29, 1932 Trustees' Meeting held in Philadelphia, Pennsylvania. An Award of Merit went to C. schroederi 'Hercules' exhibited by F. E. Dixon, of Elkins Park, Pennsylvania, and to Bc. Springtide 'Stonehurst', exhibited by Orchidwood Incorporated, of New Rochelle, New York. The first FCC was given to Cattleya Moira 'The Bride', exhibited by F. E. Dixon, of Elkins Park, Pennsylvania, and the first certificate of Cultural Commendation was given to Onc. varicosum var. rogersii, exhibited by Lager & Hurrell, of Summit, New Jersey, both awards being made at the Trustees' Meeting in Philadelphia on October 5, 1932.

The first "Register of Awards" was published in 1956, covering all awards to plants granted by the American Orchid Society from 1932 through 1955. Supplements were issued every two years covering the awards of the previous two years, until Supplement VI which appeared in 1969 and covered the three years 1966 through 1968. This concluded the series, for in January 1970, the awards of the American Orchid Society began to be published separately as an "Awards Quarterly," the first volume being completed with the October 1970 issue. The second volume began in January 1971 and now the Awards Quarterly is in its seventh year and volume.

The first edition of the American Orchid Society's "Handbook on Judging and Exhibition" was published in July 1949, codifying the regulations that had grown up around A.O.S. Judging and standardizing the procedures for Affiliated Societies to set up their own orchid shows. A revised edition appeared in September 1955, a third edition in 1960, and the fourth edition, eliminating the section on show management and retitled "Handbook on Judging," was printed in the fall of 1969. In 1973 the current fifth edition appeared, again incorporating a show manual section.

The establishment of Regional Monthly Judging began in New York in January 1949, when it first became possible for orchid growers in all parts of the country to send flowers for A.O.S. judging each month of the year. After several years of operations, additional centers were instituted in Miami, Los Angeles and San Francisco in 1955, while Honolulu was added in 1959. Additional centers were established: St. Louis (1961), Austin, Texas (1962), Seattle (1962), Tampa (1962), and in January 1968, as a result of the merger of Orchid Digest Judging with that of the American Orchid Society, Supplemental Regional Judging Centers were added in San Francisco and Long Beach, California; Hilo and Lahaina, Hawaii; and Dallas, Texas, with the main center being moved from Austin to San Antonio. A Northeast Supplemental Regional Judging Center was inaugurated in New York in January 1971, the main center having been moved to Philadelphia in 1962. Other centers have been added.

The first World Orchid Conference was held in St. Louis, Missouri, in October 1954, sponsored by the American Orchid Society, the Missouri Botanical Garden, and the Orchid Society of Greater St. Louis. In attendance from Hawaii were Dr. John H. Beaumont and Mr. John K. Noa who brought invitations for the Second World Orchid Conference to be held in Hawaii, while Mr. Takumi Kono presented orchid leis as a symbol of Hawaiian aloha. The Second World Orchid Conference was held in Honolulu in September 1957, at which time the "International Orchid Commission on Classification, Nomenclature and Registration" was established.

The first Orchid Society to become affiliated with the American Orchid Society was the Greater Cleveland Orchid Society on September 11, 1946, quickly followed by the Houston Orchid Society on December 23rd and the South Florida Orchid Society on December 24th of the same year. The idea for affiliating local societies had been developed by Mr. Robert Doig and the Executive Secretary in 1945, while the proposal was approved in principle by the Trustees in May 1945, a Committee on Affiliation, under the Chairmanship of Mr. Norman C. Yarian of Cleveland, being appointed on May 15, 1946. The idea was expanded in 1949, with the introduction of the new type Yearbook with its geographical membership roster, to stimulate the formation of orchid societies in various parts of the country and the world. In April 1961, the Committee on Affiliation was renamed the Committee on Affiliated Societies and its functions redirected toward the development of program materials and similar forms of assistance to its more that 315 Affiliated Societies in all parts of the world.

The Maui Orchid Society was the first society in Hawaii to affiliate, joining the A.O.S. family December 1, 1947, quickly followed by the Kohala Orchid Society on January 3, 1948 and the Hawaiian Orchid Society on October 8th of the same year. Our host society, the Honolulu Orchid Society, affiliated on July 15, 1968 and as of now a total of 14 orchid societies in Hawaii are members of the American Orchid Society family.

Assistance to scientific research was undertaken sporadically through occasional grants voted by the Trustees during the early 1940's, but on March 11, 1953, a more determined effort was begun by the establishment of a Research Income Fund. Surplus operating income was set aside each year into a sequestered account which could not be drawn upon until it reached the sum of $100,000.00 after which the earned income was to be spent only on research grants. Between 1957 and 1966, 35 grants were awarded, totaling $42,203.50.

In September 1964, upon the recommendation of the Trustees, the Society's membership voted to approve the establishment of a separate entity for research and education by donating the funds held in the Research Income Account. Nearly two years passed before the action culminated on February 4, 1966, in the establishment of the American Orchid Society's Fund for Education and Research, Inc., a subsidiary corporation owned by the membership of the American Orchid Society and managed by a Board of Directors which is distinct and separate from the Board of Trustees of the American Orchid Society. Since its inception in 1966, the Fund has expended more than $110,000.00 in support of research and educational projects at more that 25 institutions in many parts of the world, including more than $5,1000.00 to the University of Hawaii.

This brief account cannot offer more than the highlights of the past fifty-five years of growth and activity in the American Orchid Society; it cannot pay tribute individually to the the hundreds of dedicated members who gave so much of their time, effort and money in the building of a meaningful Society. Neither can we dwell upon the unfulfilled hopes, the failures and the mistakes which mark the trail of human endeavor during the half century of history of the Society. That we have made progress and accomplished much, we should acknowledge with satisfaction; that we have left much undone, that there are many new trails to blaze, we should also acknowledge and, it that acknowledgment, find the challenge and the purpose of our next fifty-five years.

A Brief History of the Orchid Digest

by W. Eilau, Past President, Orchid Digest [5]

Origin

The Orchid Digest got its start as a mimeographed publication of the Orchid Society of California, Inc. in the Bay Area. This group and the Orchid Society of Southern California were the primary sponsors. Volume 1 of the Orchid Digest was published in 1937 and with the many changes throughout the intervening years we have Volume 40 coming off the press during 1976.

Organization

The Orchid Digest had no formal organization of its own until 1951. Prior to that it was part of the Orchid Society of California, Inc. operating with an editor, business manager and some assistants. The first president of the Orchid Digest was elected in 1951 and since then there have been a total of sixteen past presidents who have guided the Orchid Digest.

Whitney A. Gray '51
J. P. Spitzel '52
B. Walter Slagle '53
George D. Field '54 & '55
Keith Shaffer '56
Robert D. Jones '57 & '58
John W. Hanes '59 & '60
Eugene Casey '61
William Farrell '62 & '63
Charles E. Bowman '64 & '65
Dr. Lawrence Vance '66
Emerson W. Charles '67 & '68
Harold G. Schluter, MD '69
William E. Eilau '70 & '71
Dr. Maynard C. Michel '72 & '73
C. C. Wright, MD '74 & '75

James Riopelle, an avid orchid grower, is the current president of the Orchid Digest and he is supported by the other officers, a number of committees and a very capable editor. The Orchid Digest staff works on a voluntary basis and only one individual receives a part-time salary.

Purpose

The Orchid Digest is an organization whose purpose is to disseminate information concerning the culture, growing, hybridization, use and appreciation of orchids, and for the purpose of publicizing the activities of orchid societies and other organizations interested in this and related purposes.

By far the most significant way the purpose for the Orchid Digest can be carried out is through the Orchid Digest magazine. It is the only tangible connection many members in the distant corners of the world have with the organization. The Orchid Digest was originally a ten issue per year magazine with a smaller format. Several years ago the present 8-1/2" x 11" format was adopted. As the costs for mailing, printing, color separations and other items rose it was decided to change to a bimonthly magazine, using the savings from mailing costs, extra covers and title pages to increase the editorial content with color in every issue. Only the best color transparencies are used for the illustrations in the Orchid Digest.

Honolulu Orchid Society Inc. Yesterday and Today

by Toy Len Chang [6]

In 1939, a group of about sixteen orchidists, largely from the Judd Street and Liliha areas met to form an orchid organization. Although it was open to anyone, the charter group was of Japanese ancestry. Meetings were held at Goichi Miwa's home and he was elected the first president.

"It was my dream to have an international group," says Miwa who started out as a hobbyist in the early 30's, importing orchids from England and Japan. Weather permitting, the early meetings were held under the trees in Miwa's spacious yard. At times, the group had dinner at one of the teahouses, enjoying chitchat about orchids.

Information about the finer points of orchid culture was meager at that time, but many pooled their experiences and ideas despite a pessimist who maintained that 0 + 0 = 0. For this reason, there was a need for an organization to learn about orchids. Ideas were shared and interest in orchids increased, aided by Hawaii's mild climate. Growing techniques and, heretofore, "secret" methods were shared at meetings. Interest in orchids spread to the outer islands where much fine work has been done in Hiio and Maui especially on the Vandaceous genera.

In the early 1930's, growing orchids was regarded as a rich man's hobby. Takami Kodama did much to popularize orchid cultivation among the average income families by making available to those interested, thumb pots at the nominal price of 50 cents.

To stimulate interest, the first orchid show was held at the old Young Buddhist Association building on Fort Street in the summer of 1940. At this event, other flowers were included in the show and some nice yellow Cattleyas on display are still remembered. No admission was charged. "There was not much variety," says T. Kazumura, one of the charter members, "and they had mostly Cattleyas and species."

World War II brought an abrupt halt to further meetings of Honolulu Orchid Society, Yoshito Inouye was president then. Everyone was preoccupied with the war effort.

After the war years, orchidists met again, this time at the old shop building at McKinley High School. Many old-timers still remember vividly the orchid show held in the corridor of the Administration Building. Tom Feiteira, president at the time, recalls that shows were held two or three times a year; whenever someone made the suggestion and the Board granted approval. No admission was charged.

In ensuing years, several shows were held jointly with the Pacific Orchid Society in the lovely setting of the Honolulu Academy of Arts. These were well attended and many new hybrids attracted much attention and stimulated more interest in the beautiful orchid blossoms. At these shows, for example, the 1948 co-sponsored event, admission was only 25 cents. V. Onomea was new and attracted much attention.

Orchid shows have always been an important project with the Honolulu Orchid Society. It stimulated interest in orchids and invariably attracted new members. It was an opportunity for members to work together and to get better acquainted in addition to acquiring knowledge about the exciting world of orchids.

When the Honolulu International Center complex was built, Honolulu Orchid Society scheduled shows annually in the fall to coincide with Aloha Week since there are many out-of-town visitors to insure good attendance at the show. Plants sales, as a part of the show, provided plants at reasonable prices and were always a great center of activity. Corsages made by members were sold at a nominal price which always surprised and delighted the visitors who pay much more for them in their mainland hometown. Demonstrations of various types were always a part of the show and encouraged many to undertake the joys of growing orchids.

The Honolulu Orchid Society was incorporated on December 18, 1950. This was necessary because it was a requirement for buying insurance to put on an orchid show which involved so many people. It was also a protective measure against legal action in case of accidents.

As attendance at meetings increased it was necessary to find a hall large enough to accommodate the group. For a few years, sessions were convened at the University of Hawaii, followed by the use of the Hawaiian Sugar Planters' Association's Agee Hall. This location was used for about two decades, being convenient and with good facilities.

In 1957, it was decided by the Board of Trustees to have a workshop in the even months and a general membership meeting in the odd months. This worked wonderfully well as it gave members the opportunity to practice the information gained. It was always the aim of the Honolulu Orchid Society to provide information to beginners or to those who wished to grow better orchids.

When Agee Hall was closed, meetings were shifted to Farrington High School Cafetorium. Although attendance was good, parking posed a problem. This year, meetings are being held at Kapalama School where parking is ample, attendance has been excellent, and programs have been informative and enjoyable.

Many beautiful orchids were being bloomed in Hawaii from the early years and judging was inevitable. At first, the president selected a few members to perform the duty of judging and ribbons were awarded to a recognize special merit as determined by vote of the committee. The first formal judging was in 1951 when Ren. Jack Warne, owned by Kodama Nursery for example, received the first Award of Merit Certificate.

In the mid-1950's, an Awards Committee was organized to set up criteria for judging orchids. At this time, a set policy was deemed desirable although up to this time, plants were judged by votes on plants which were designated for consideration. A more formal businesslike arrangement was the goal. Seiji Obata was appointed by President John Noa to work with a committee to formulate a set of rules. There was always a display table at the meetings and members were urged to bring plants to be judged or even just to display for others to enjoy. Rules were deemed necessary.

Although experts everywhere were consulted, there were no standards or sets of rules to cover tropical orchids such as those in Hawaii. The hybrids were increasing rapidly since much was being done by orchidists in Hawaii with beautiful results. There were rules available for other genera, but little on the spray type orchids found in Hawaii. Many hours were spent by committee members in formulating a policy on rules and regulations; these are shared by orchidists elsewhere.

In Hawaii, color was of much importance; almost as important as form. A workable score sheet was used in judging plants and it was soon adopted by the American Orchid Society for Dendrobiums and Vandas.

For this important project, Seiji Obata was honored as the Orchid Man of the Year in 1956. This was the first such award granted by Honolulu Orchid Society. Since then, honoring outstanding members has been an important phase at the Annual Banquet.

Honolulu Orchid Society does recognize contributions by members to further orchid cultivation. For example, an honorary membership was granted W. W. Goodale Moir a few years ago, for his many articles in the HOS Bulletin and to recognize his work in the advancement of orchids. Another example was in 1970 when Ben Kodama was designated the "Orchid Man of the Decade" at the Annual Banquet, in recognition for his wholehearted support of various HOS functions and activities.

Orchid people always have much to talk about and enjoy socializing. The first Annual Banquet was a nine course dinner at the beautiful, world-famous Waikiki Lau Yee Chai on January 18, 1952. Each year the Banquet is a highlight among activities when officers are installed, trophies for the Show presented, and the Man of the Year Award is granted.

Orchidists also like to take time out for fun and in midyear. During the summer a highlight is Family Night when, for a nominal sum, members bring their families to enjoy a fine dinner, usually a buffet, served by members. Many prizes including plants and supplies are passed out climaxing a very worthwhile evening of fun.

To keep orchidists informed on the latest developments in orchid cultivation, Na Pua Okika O Hawaii Nei was first published in July 1951. Wallace H. Otaguro was Publication Chairman and first editor. It had wide circulation. Richard Fujio followed as Editor until HOS and the Pacific Orchid Society decided to publish a combined bulletin. The first issue of Na Okika O Hawaii (Hawaii Orchid Journal) was published in march 1972 by a staff from membership of both societies and edited by Dr. Yoneo Sagawa.

The following is a roster of Presidents of the Honolulu Orchid Society beginning in 1939:

Goichi Miwa	1939 - 1940
Yoshito Inouye	1940 - 1941
(No meetings, 1942 - 1945)	
Thomas Feiteira	1946 - 1947 - 1948
Rokuro Urata	1949 - 1950
Dr. Dai Yen Chang	1951 - 1952

Glenn Yamada	1953 - 1954
John Noa	1955 - 1956
Masatoshi Miyamoto	1957 - 1958
Benjamin T. Kodama	1959 - 1960
Douglas Sakamoto	1961 - 1962
Kalfred Yee	1963 - 1964
Benjamin T. Kodama	1965 - 1966
Edward C. C. Wong	1967 - 1968
Francis Tsukiyama	1969
George Char	1970 - 1971
Richard Takase	1971 - 1973
John Costa	1974
Richard Lum	1975
Edward C. C. Wong	1976

The Pacific Orchid Society
A Brief History

by Erma Warne [7]

When in the course of the passage of time a society, almost any society, decides to publish the story of its founding and subsequent history, it is almost routine to find that the early records are lost, misplaced, or at any rate not available. Fortunately for the Pacific Orchid Society we still have among us some who can say "I was there."

It is important to know what the orchid world was like back in the twenties and thirties. Orchids were grown by a few hardy individuals who had travelled, had seen the famous collections in cultivation, or had become familiar with the orchids in their native homes in the tropics, and perhaps had seen some of the wonderful orchid books published in England and France. Of course, there was the English Orchid Review, and later, the American Orchid Society Bulletin, but much of what was found therein did not seem to apply to us in Hawaii. There was also the almost universal practice of secrecy. "I found out the hard way, now you can do likewise."

The orchid growers in Honolulu used to visit each other's collections and share some plants and knowledge. THat is the genesis of all the orchid societies in Hawaii -- they were organized by people who were already friends and shared this common interest.

It was sometime in 1940 that John Lowson, after talking for months about the benefits of an Orchid Society, finally took it upon himself to call a meeting and create one. About 12 people attended; some are still here and active in orchids, others are gone. Walter Carter was elected our first President, and we were on our way. Purpose: to have meetings, at least four of which each year were to be business meetings, to hold shows for the enjoyment and education of the public, and to engage in other projects of general value, such as publishing.

The principal tone of the young society was scientific because so many of those early members were highly trained plant scientists, but as the membership widened we became aware of the problems of the beginner in orchids, and have always tried to give him special attention, both in the meetings and in the publications.

The Bulletin of the Pacific Orchid Society made its first appearance in January, 1941. Dr. Walter Carter was the editor, and continued in that post for the next nineteen years, until his retirement from the Pineapple Research Institute. The first volume was mimeographed and contained some excellent material, basic to the understanding of orchid cultivation. Printed, after the first volume, the bulletin soon began to make a feature of its photographs of orchids, most of which were by Raymond Sato of the staff of the Honolulu Academy of Arts. Done in black and white, they are truly a treasure of artistry in photography, as well as a flower and plant record. In content, Dr. Carter set a standard which, built up and polished as a labor of love during those nineteen years, established the reputation of the Society around the world.

For the next six years the editor of the Bulletin was Erma Warne. Color covers were introduced, and Louise Wulff was established as official

photographer, both in color and in black and white. The real accomplishment of this period was the publication of the Beginner's Handbook for Orchid Growing in Hawaii, "The Pink One," which has proven to be the best seller of all orchid books in Hawaii. First presented in 1963, it has gone through six printings, (but now, 1976, it is being completely revised). Many of the colored covers were printed in the form of note cards.

Beginning in 1966, and continuing to 1972, Dr. Yoneo Sagawa was our editor. It was in 1973 that our Bulletin was merged with that of the Honolulu Orchid Society as Na Okika O Hawaii - Hawaii Orchid Journal, again under the editorship of Dr. Sagawa.

The problem of a meeting place came up early. After trying several, we were very happy when Dr. Lyon rose to tell us that the Hawaiian Sugar Planters' Association was building Agee Hall, which would have an auditorium suitable and available for use by all organizations such as ours, with any agricultural connections. That was our meeting home for thirty years, until it was purchased by the City & County of Honolulu. Since then, we have met at the Church of the Crossroads.

The Honolulu Academy of Arts was a wonderful place to have orchid shows. We had our first show in November 1940, and our second in March 1941, and at this one we had ribbon judging. These shows were small, using only one or two galleries, but since the Academy required little or no decorating we were able to put them up with very little cost, so there was no charge to the public.

One of our most memorable shows was held in June 1942, at the height of the Battle of Midway. The question became -- to cancel the show and go home and hide, or proceed with the show. We consulted the Military Governor, who told us to go ahead. It would keep the people calm and out from underfoot. It was a good show. For several years we had two shows a year in order to catch the various groups of plants at their best, but gradually we settled on Spring as our time.

The battle with the photographers built up gradually. All cameras then had tripods, and the intrepid photographers thought nothing of setting up and fiddling for half an hour while the line stalled impatiently behind them. It sometimes seemed that there were tripods all over the place. We finally solved that problem by opening the show an hour early for photographers only, and banning them during regular hours.

We had stopped ribbon judging during the war, and had no other judging at our shows until March 1962. By this time regional judging had been set up in Hawaii by the American Orchid Society, so the A.O.S. judges were invited to our show.

A notable event in our history was the first Joint Show, held with the Honolulu Orchid Society at the Academy in June 1946. It was a real undertaking, for each committee had equal representation from each society, and the Academy was almost entirely given over to the show. The Greek statues looked better than usual framed with lovely specimen Dendrobium plants, and the Italian paintings were set off by bowls of hybrid Vandas. Attendance was 33,661.

The joint show became an annual event, until the completion of the Honolulu International Center (now the Blaisdell Center) when the Honolulu

Society decided to put all its efforts into their Fall show, in cooperation with Aloha Week. We continued with our Spring show, and in March 1964 we held our 24th show, which proved to be our last at the Academy. Policies there changed, and they wished to concentrate on their own art displays.

Our next show was held in Davies Hall, at St. Andrew's Cathedral. It proved to be an excellent place for a show as far as light and air are concerned, but attendance was poor. We had to look elsewhere for a place for our shows. Honolulu International Center seemed the only answer.

We decided that H.I.C. was too big for us to fill with our orchids, so we instituted a Spring Flower Show, in which were joined by other plant and flower organizations, such as cactus, bonsai, bougainvillea, bromeliads, the Nurserymen, and others. It was very successful, so we did it again the next year. The third year we planned a beautiful show, but there was a bus strike, so attendance was poor. The fourth year we struggled against rain for six weeks while we were trying to prepare our flowers for the show, and continued drizzly weather during the show did not help us at all; so we decided that we had had enough. The financial and physical drain on our membership was too much, so decided not to have any more shows of our own, although we would continue to assist other societies in their shows.

Much more could be written about the activities and contributions of the Pacific Orchid Society, such as the compiling of Hawaiiana, the record of all orchid hybrids made in the Islands, but this survey of 37 years of activity does present somewhat of a picture of us. Our main project for 1976 is the complete revision of our Handbook for Beginners. It will follow the same format with simple instructions for the care of orchid plants including how to spray, to water, to transplant, and to care for the plants in general. Separate chapters will discuss the principle kinds of orchids grown in Hawaii. The diagrammatic drawings which proved so popular with the beginner will continue to illustrate all the instructions. Distribution will continue to be through sale at all the larger garden shops in the Islands. The measure of our faith in the new orchid growers is that the first printing of this revised Handbook will be five thousand copies.

Presidents of the Pacific Orchid Society

1940	John Lowson (protem)	Honorary President	Dr. H. L. Lyon
1941	Dr. Walter Carter	" "	Frank C. Atherton
1942	Stanley Gillmar	" "	Hazel McCoy
1943	Rolla K. Thomas	" "	Wilhelmina Tenney
1944	Rolla K. Thomas	" "	Laura Keller
1945	Dr. J. P. Martin	" "	Rolla K. Thomas
1946	Dr. J. H. Beaumont	" "	Dr. Walter Carter
1947	John Lowson	" "	John E. Russell
1948	Oscar M. Kirsch		
1949	W. W. G. Moir		
1950	Jack Pope		
1951	Elroy Haynes		
1952	Milton Warne		
1953	John S. Williamson		
1954	Robert E. Warne		
1955	Dr. Chester A. Wismer		
1956	Dr. Wallace G. Sanford		

1957 J. Scott B. Pratt
1958 Dr. Robert W. Leeper
1959 Robert L. Kennedy
1960 Clarence Miller
1961 J. H. Christ
1962 J. H. Christ (Resigned Sept. to retire to California)
1963 Dean Conklin
1964 Howard Starke
1965 Howard Starke (Resigned Sept., transferred to Greece)
1966 Chew Wong
1967 Chew Wong
1968 Dr. Thomas Fujiwara
1969 Dr. Thomas Fujiwara
1970 Dean Conklin
1971 Ted Green
1972 Ted Green
1973 Elroy Haynes
1974 Elroy Haynes
1975 Charles Crispin
1976 Charles Crispin

History of the Honolulu Orchid Society

by Rev. Masao Yamada [8]

A group of orchid enthusiasts discussed the matter of organizing an orchid society for several weeks. They finally met at Goichi Miwa's residence on December 3, 1939, to organize the Honolulu Orchid Society. Those present decided to go ahead and immediately proceeded to elect their officers. Goichi Miwa was elected the first president; Yoshito Inouye, vice president; Tadao Kazumura, Japanese language secretary; Glenn T. Yamada, secretary-treasurer. Thirteen were present, but 16 were included as charter members. Memory is vague on this score, but it is assumed that the following were the original members: Goichi Miwa, Yoshito Inouye, Tadao Kazumura, Glenn T. Yamada, Albert Shiraki, Rokuro Urata, Joe Tanaka, Mrs. T. Tsukamoto, Charles Uchida, Seiya Nakamori, George Suyeoka, Gonjuro Kawahara, Ichiro Iwasaki, Sugimoto Kondo, and Uchiumi.

The first general meeting was held on February 11, 1940. One of the early desires of the society was to become an affiliated group of the American Orchid Society, Inc. Letters were sent to the AOS, but there were some difficulties which made affiliation impossible at the time of application.

The first Orchid show was held at the YBA Hall in the spring. A notice was circulated reading. "The Honolulu Orchid Society (member of the American Orchid Society) (Editor's comment: it never materialized) will sponsor a Flower and Plant display on May 25, 26, 1940, at the Honolulu YBA, 1710 Fort Street . . . Exhibits will not be confined to orchids, but may include Bonsai (Dwarfed plants), ferns, anthuriums, floral exhibits of all kinds, and interesting experiments in chemical feeding."

The orchid show was not a large one as compared to those of today. An old-timer remembers that the outstanding feature was the mass of C. Triumphans on display. (Where are those delicate Triumphans today?) This was the humble beginning of the HOS.

Yoshito Inouye became president in 1941. His administration struggled on with birth pains. Meetings were called at the YBA Hall as necessity warranted. World War II started on December 7, 1941, and forced the society to be inactive. Tom Feiteira was elected president and took office in January, 1946.

The society moved on the double to increase its activities. From 1946 to the end of 1948, a new constitution was adopted, and the society managed to present six orchid shows for public enjoyment. Most of the shows were held at McKinley High School, the corridors, the gym, and the Lanai Lima Lau. In 1948, the first joint show with the Pacific Orchid Society was inaugurated at the Honolulu Academy of Arts. General meetings were held at the YBA. Membership increased double in the span of 2-1/2 year after the war.

Rokuro Urata became the president of the HOS for 1949 and 1950. It was his turn to celebrate the 10th Anniversary. The 10th anniversary banquet was held at the Ishii Garden. As a special anniversary feature of the society's program, the awards committee was appointed to plan and present HOS awards to worthy displays and orchid blooms.

Thomas Miyashiro was appointed the first chairman, but he was forced to resign due to ill health. Walter Kashinoki became the successor and the HOS Awards Committee began its historic work in 1949.

HOS Orchid Shows were continued at McKinley High School, Lanai Lima Lau. The joint show was held at the Honolulu Art Academy. The Awards Committee judged displays and the "best flower of the show."

General meetings attracted large audiences and so the meeting place was changed from the YBA to the Social Science Building of the University of Hawaii. Interest in orchid growing became community-wide. By 1949 and '50, orchids were the common place conversation at street corners and restaurants.

Some new orchid ideas began to appear in 1949 and '50. Kiyoshi Ito began to raise Cattleyas in water and this method was named "Itoponics". Fresh coconut water was used in germination formulae. Even "embryo culture" was being started in Hawaii.

Dr. Dai Yen Chang was elected as president for 1951 and 1952. During his administration, membership reached the 500 mark. In 1951 the HOS participated in four public shows, two of its own, one joint show, and one together with the Florists show.

General meetings became alive with members eager to learn all the secrets of orchid growing. From January 1951, the place of meeting was moved from the University to Agee Hall, HSPA, 1527 Keeaumoku Street.

July 1951 marks another milestone in the growth and progress of the HOS. The first HOS Bulletin, "Na Pua Okika o Hawaii Nei" was published and mailed to its members. Wallace Otaguro was appointed the editor. He and his committee spent many hours to see that the Bulletin made its deadline.

The first issue printed one of the most promising scientific studies by Dr. Haruyuki Kamemoto. "Polyploidy in Cattleya Breeding." This article has been a guide to the tremendous improvement of orchid breeding in the islands.

In 1951 several interesting items of orchidology could be mentioned. Den. Anouk 'Kodama' received the "Best Flower of the Show" trophy. Cattleyas and allied genera were winners in the past, but the Dendrobium came into its own. In November, 1951, Den. Diamond Head Beauty 'Crimson' received the first FCC honor ever awarded by the society.

The old orchid pest, the Cattleya fly, Eurytoma orchidarium started growers with the bulging onion like new growths. T. Tanaka nursery registered the first tri-generic hybrid from Hawaii, Phal. schilleriana x Aerdv. Ruth as Tanakara Honolulu.

A new feature appeared in 1952. The first annual banquet was held on January 18, 1952. It was a tremendous success. It seemed as though the entire membership was present at the nine course Chinese dinner.

In 1952, orchid interest was heightened with new blooms and new methods of culture and propagation. V. Nellie Morley bloomed and created a sensation in Honolulu. The semi-terete Vanda with overlapping round thick flower, strawberry red in color, was a most attractive blossom to be seen to date.

Alexander Chang became an international figure by divulging his "Fish Emulsion Formula" for germination in the "Na Pua Okika o Hawaii Nei."

Glenn T. Yamada succeeded in the presidency for 1952 and 1953. Under his leadership the "Monthly Judging Sessions" were inaugurated. On April 14, 1953, V. Nellie Morley 'George Ing' received the second FCC, HOS. V. Nellie Morleys became not only a semi-terete desired by our local growers, but it became a Vanda of International reputation.

Membership expanded beyond Hawaii. The membership roster listed members from the USA mainland, and Ceylon, Australia, and Singapore.

John K. Noa was elected president for the 1955 and 1956 terms.

The orchid shows at the Honolulu Art Academy became a regular community event. Exhibits increased and the quality of blooms improved. Harry M. Tagawa's Blc. Norman's Bay 'Hercules' FCC RHS was so perfectly flowered that Norman's Bay became the password for the Cattleya genera.

In September, 1955, Seiji Obata, Chairman of the Awards Committee, inaugurated the point system for judging the various genera. This system has been in use ever since.

At the 1956 Annual Banquet, another new feature was included, The "Man of the Year" Award was instituted. Seiji Obata was the first recipient of the award for meritorius service rendered to the society.

In 1957 "Man of the Year" award honored Ben Kodama for his untiring service rendered for the good of the society.

Masatoshi Miyamoto became president for 1957 and 1958. His first year of 1957 must be considered as the most significant period in Hawaii's orchid history. It was not the work of the Honolulu Orchid Society alone that brought about the success of the 2nd World Orchid Conference Show on September 19-23, 1957, at the Honolulu Academy of Arts. It was, however, a lasting credit to the Society in supplying the show chairman, Ben Kodama, who organized the intricate details to put on the world's foremost orchid display. Ever since the show, Hawaii has been called the orchid center of the world.

The "Best in Show" award was given to V. Waipuna owned by the Kodama Nursery. It was significant to note that judges from all parts of the world without radical deviation voted the Vanda bloom as the best of the show.

In 1958, the Honolulu Orchid Society made further gains in membership. It moved up to the 700 mark. "The Man of the Year" award was presented posthumously to Dr. J. H. Beaumont who gave so much of his time and energy to plan and coordinate the details of the 2nd World Orchid Conference held in Honolulu.

Ben Kodama was elected president for the 1959 term. In his acceptance speech he mentioned the 20th Anniversary observance to be held this year. Chew Wong received the "Man of the Year" award for meritorious service rendered to the society.

A spring joint show was re-activated, through request of the Pacific Orchid Society, in May at the Academy of Arts.

In October, the HOS cooperated with eight other Oahu societies to present the 2nd Hawaiian Orchid Conference Show at the Honolulu Academy of Arts. It was encouraging to see the rural societies display their tables with artistic arrangements of quality orchids.

The Awards Committee with Richard Fujio as chairman revised the award rules. His committee has improved materially in record keeping and in facilitating judging procedures.

In October, 1959, Wallace Otaguro sent in his resignation as editor of "Na Pua Okika o Hawaii Nei." For nine years he gave his services to keep our members informed on orchids and orchid personalities. The Board of Directors accepted his resignation with deep regrets and voted appreciation for all his labors.

HOS history ends here momentarily as members celebrate the 20th Anniversary on November 10, 1959, at the Farrington High School cafeteria feasting on "Huli Huli" chicken, and enjoying the artistic arrangement of the live orchids from the Club Ginza. (Read by Richard Fujio, in the absence of Rev. Yamada at the twentieth Anniversary.)

H.O.S. Judges (Certified and Probationary) 1968[9]

These are the people who sacrifice their time and often miss the informative presentations and valuable discussions at the meetings to help us evaluate the beautiful flowers for HOS awards to the best of their abilities. Monday quarterbacks have made things uncomfortable and rough and vies have been different sometimes, regardless they are serving HOS and trying to keep the standards respectable to the orchid world. There are two areas -- Honolulu and Maui -- covered by the HOS judges.

In Honolulu the certified judges are: Richard T. Fujio, Mordecai Hudson, Yoshito Inouye, Kazuo Kamemoto, Ben T. Kodama, Harold M. Kushima, Masatoshi Miyamoto, Kaoru Oka, Wallace H. Otaguro, Isao Takemoto, J. Milton Warne, Edward C. C. Wong, Joe Yasuda, Wilfred Yoshida and Majong M. Yoshimura. The probationary judges are: Robert Aoki, Mrs. Richard Mizuta, Wallace Nakamoto, Hajime Ono, Mrs. Robert Perreira and Sueo Sakamoto.

On Maui the certified judges are: A. H. Chee, S. Demura, Roy T. Fukumura, K. Kijima, K. Koito, N. Nakamura, K. Nishimura and Francis Takakura. The probationary judges are: K. U. Chee, N. Orikasa and Boss S. Yokouchi. The clerks are: E. Nishimura and T. Yamaguchi.

Mr. George K. O. Char is the Chairman of the HOS Awards Committee and his helpers are Donald Chow, Richard Takase and Ernest Tanaka. Mr. M. Miyamoto and Mr. Charles Matayoshi are the official photographers.

Kohala Orchid Society

by A. C. Stearns [10]

The Kohala Orchid Society is made up of a relatively small group of orchid hobbyists who live in the Kohala district, located on the northern end of the Island of Hawaii.

Climatic conditions, including temperature, sunlight and rainfall, are adequate for satisfactory growth of the warm climate orchid genera. It is necessary to take adequate precautions against the steady drive of the trade winds that beat in from the open sea. Except for occasional periods of heavy rainfall, plants must be watered regularly as the drying effect of the wind is considerable.

Orchids are grown at elevations varying from 100 feet above sea level to 600 feet. In this elevation range the rainfall varies around an average of 50 inches to 60 inches a year. Mean temperatures vary from 65 to 75 degrees. It is unusual to have a maximum temperature reach 85 degrees. Sunlight is sufficiently bright to require a moderate amount of shading.

Cattleyas and their related hybrids are the predominant kind of orchid grown in the district. Without exception, each collection is characterized by Cattleyas. Those collections dating both at least ten years, are made up of some very good things. For example, Mr. Harold Sugiyama, local Lieutenant of Police, has one of the finest collection of yellows to be found anywhere. Although his darks and whites are good, I believe his collection of quality yellows reflects his interest in this type over the years.

Senator Charles Silva also has some very good Cattleya plants in his collection including darks, whites and yellows. C. Okami's are his special interest. James Luke is rapidly increasing the size of his collection and has numerous selected plants.

Within the past three years the number of new Cattleya seedlings brought into the district has gone up by several thousand percent. These seedlings represent practically every grower in the mainland and in Hawaii. The parade of new Cattleya seedlings that will flower in Kohala during the next few years will be really interesting.

Kohala hobbyists who have imported Cattleya hybrids in recent years are H. Sugiyama, James Luke, Charles Silva, Y. Kawamoto, W. Kagawa, M. Yamamoto, T. Kinoshita, J. S. B. Pratt and A. C. Stearns.

Vandas rank next to Cattleyas in popularity and the interest is rapidly increasing. Every collection is steadily enlarging the number of Vanda hybrid seedlings. Most Vandas are grown in considerably warm sunlight than is usual with Cattleyas. Many are in open sunlight. In general, organic fertilization is heavy and the plants are frequently watered. When given adequate protection from the wind, Vandas do well in Kohala and flower freely.

Mr. J. Scott B. Pratt, now of Kaneohe, Oahu, who spent many years in Kohala, has a fine collection of Vandas. His outstanding plants are V. sanderana, V. Rothschildiana, and a V. coerulea, which he obtained from Y. Hirose of Hilo a

number of years ago. Vanda collections that are developing fast are H. Sugiyama's, C. Silva's, M. Yamamoto's, Y. Kawamoto's, and A. C. Stearns'.

Dendrobes are third in general popularity with the nobile types more in evidence than the Australian spray types. Each year in the late fall, those who have large numbers of the nobiles have trucks haul the large specimen plants up to Kahua Ranch, which is located at 3300 feet elevation. Here, the plants are left until in full bud. Then they are hauled back to the district to come out in a spectacular display of blooms. It is too warm at 600 feet to bring out a full bloom so the plants are moved 12 miles to a higher elevation and cool temperature.

Oncidiums, Phalaenopsis, and Botanicals, balance the collections out to the extent that orchids are in flower the year around in Kohala.

The Kohala Orchid Society is an active group, with meetings being held every two months. The meeting place rotates among the homes of the members. Outside speakers are a regular occurrence. However, if nothing special is on the agenda, the members meet to keep abreast of the plants that are in flower at the Exhibition table. Plans have been approved for the Society to purchase a camera. This will assist in the Society policy of maintaining a slide collection of flowers that meet the Standards Committee's approval. We plan to have duplicate slide made which will be sent to the American Orchid Society. We will be glad to share our collections, when developed, with other societies.

With the large number of new seedlings that will be flowering for the first time and to make it possible for all members to see the new flowers, our secretary will send cards to each member, notifying them that a new plant is in flower and can be seen at its named time and place. The owner of the plant will notify the secretary.

Over twenty persons and their families in Kohala are having a lot of fun in sharing the growing of orchids and their flowers with each other!

Origin of the Present Hawaii Orchid Society

by Mack Odo and Takumi Kono [11]

The Hawaii Orchid Club, as it was first known, had its start from orchid discussions held amongst early orchid fanciers back in 1935-36-37. Orchid discussions were held on various thoroughfares and especially at the corner of Kamehameha Avenue and Shipman Street. This, then, points to Mr. Herbert C. Shipman and Mack Odo, whose offices were at the corner of the above mentioned streets, as being directly connected with stimulating the way to an organized Orchid Club. With the promotional impetus put in by Takumi Kono, all the known orchid fanciers in Hilo were asked to meet to discuss the possibility of establishing a club for orchid fanciers, patterned after the other orchid groups known to have existed throughout the world.

The first meeting was held at the Hilo High School agriculture room on Sept. 26, 1938. There were nine orchid fanciers present at this first meeting. An election of officers was held and Alexander Anderson of Papaikou was unanimously elected President. A committee to make further study of an orchid organization and to draw up a constitution and by-laws was appointed by the President.

The second meeting was held exactly two months after the first meeting. The rough draft of the constitution was read and most of the provisions were accepted by the members present.One of the provisions mentioned in the by-laws was that meetings be held once every two months.

News of the formation of the Orchid Club spread rapidly and in a short time its membership grew into a sizeable group. From a membership of nine persons, the Hawaii Orchid Club (Hawaii Orchid Society -- 1949) has grown to its present membership roll of 180 orchid growers and fanciers. Of special interest to the members present at all meetings have been the various demonstrations given by successful orchid growers. In each of the demonstration, it has been found that new ideas and schemes in orchid growing have come to light, thereby, creating much of interest and learning to all present.

The Hawaii Orchid Society is now in its eleventh year of existence. It has held annual orchid shows in July and additional interim shows at business houses.

The first officers were Alexander Anderson, President; Takumi Kono, Vice-President; and Mark Odo, Secretary-Treasurer. In the Technical Advisory Board were: Miss Margaret Shipman, Herbert C. Shipman, and Y. Hirose.

Subsequent officers were:

	Officers	Technical Advisory Board
1939-40:		
President	Takumi Kono	Miss Margaret Shipman
Vice-President	Dr. Leslie Weight	Herbert C. Shipman
Sec.-Treas.	Mack Odo	Y. Hirose
		Alexander Anderson

1941-41:

President	Alexander Anderson	Miss Margaret Shipman
Vice-President	Lindo Matsu	Mrs. C. Carlsmith
Sec.-Treas.	Winifred L. McKaig	W. Ferreira
		W. W. Moir
		Clyde Crawford

1941-42:

President	Clyde Crawford	Miss Margaret Shipman
Vice-President	Lindo Matsu	Mrs. C. Carlsmith
Sec.-Treas.	Winifred L. McKaig	W. Ferreira
		W. W. Moir

1942-45 (WAR YEARS)

1945-46:

President	Clyde Crawford	Takumi Kono
Vice-President	William W. Moir	Alexander Anderson
Sec.-Treas.	Willa E. Cody	Y. Hirose
		Renton Hutchison

1946-47:

President	Renton Hutchison	Takumi Kono
Vice-President	W. Ferreira	O. Lyman
Sec.-Treas.	Mrs. Glenn Mitchell	T. Nakayama
		Alexander Anderson

	(Listed as	Board of Directors from 1947)

1947-48:

President	H. I. Nitta	Alexander Bowman
Vice-President	W. W. Moir	Y. Hirose
Secretary	Mrs. Glenn Mitchell	O. H. Lyman
Treasurer	Yoshio Shigenaga	Ray Walker

1948-49:

President	Hayato Tanaka	Alexander Bowman
Vice-President	William Ferreira	Ray Walker
Secretary	Mrs. Glenn Mitchell	M. S. Cordeiro
Treasurer	Sadawo Akiyama	Mack Odo

HAWAII ORCHID SOCIETY
Hilo, Hawaii
P.O. Box 483

OFFICERS

President	Mr. Herbert C. Shipman
Vice-President	Mr. Glenn G. Mitchell
Secretary	Mrs. Glenn G. Mitchell
Treasurer	Mr. Shigeru Ushijima

DIRECTORS

Mr. M. S. Cordeiro Mr. Mack Odo
Mrs. O. H. Lyman Mr. Mark Yamanaka

COMMITTEES

PROGRAM: Mrs. O. H. Lyman, Chairman
TABLE EXHIBIT: Mr. M. S. Cordeiro, Chairman
MEMBERSHIP: Mr. Tadashi Okamoto, Chairman
ANNUAL SHOW: Mr. Y. Hirose and Mr. S. K. Oda, Co-Chairmen
LAND FOR ORCHID CULTURE: Dr. H. Nishimura, Chairman
CONSTITUTION & INCORPORATION: Mr. Clyde C. Crawford, Chairman
TERRITORIAL COMMITTEE ON ORCHID AFFAIRS: Mr. Herbert C. Shipman
HAWAII COUNTY FAIR ORCHID SHOW: Mr. Mark Yamanaka, Chairman
WOMAN'S CLUB FLOWER FESTIVAL ORCHID SHOW: Mrs. Alexander Bowman, Chairman
SPECIAL SMALL SHOW: Mr. Takumi Kono, Chairman
PUBLICATIONS COMMITTEE
CO-EDITORS: Rev. Masao Yamada & Mr. Charles Putnam
BUSINESS MANAGER: Mr. James Hamasaki
CIRCULATION MANAGER: Mr. Horace Kawamura
ASS'T CIRCULATION MANAGER: Mr. James Kawanishi

Origin of the Hawaii Orchid Society

by Takumi Kono [12]

The Hawaii Orchid Club, as it was first known, had its start from orchid discussions held among early orchid fanciers back in 1935-6. Orchid discussions were held where and whenever orchid growers met. Home to home visitations were popular means of keeping in contact with fellow growers, but the most popular informal gathering places were adjacent offices of Mr. Herbert Shipman and Mr. Mack Odo of Waldron Co. One day, Takumi Kono talked with the two men about forming a club for orchid growers. Discussions led to complete agreement on the need of a club where members can benefit from exposures to discussions, listening to speakers, observing cultural demonstrations, etc.

Kono wrote to many of the known orchid growers, announcing that an organizational meeting will be held in the Vocational Agriculture room of Hilo High School on September 26, 1938 at 7:30 p.m.

There were nine orchid growers present at this first meeting. Discussions were lively and everyone agreed to join as members and participate in the club's program. An election of officers was held and Mr. Alexander Anderson of Papaikou was unanimously elected President. A committee to make further study of an orchid organization and to draw up a constitution and bylaws was appointed by the President.

The second meeting was held two months after the first meeting. The rough draft of the constitution was read and most of the provisions were accepted by the members present.One of the provisions mentioned in the bylaws was that meetings be held once every two months.

News of the formation of the Orchid Club spread rapidly and in a short time membership in the Club grew quite large.

In anticipation for affiliation with the American Orchid Society, a change in name to Hawaii Orchid Society was made. After submitting our application, and months later, we received a certificate of affiliation with the American Orchid Society, Incorporated. This was in October of 1948.

In 1948, the membership of the Hawaii Orchid Society was at 223 fully paid up members. Everyone was happy and meetings and programs went on fine. In the interim years and unknown to this writer, there must have been an undercurrent of dissent. For what reason, or reasons, I do not know there was a demise of the Hawaii Orchid Society after 19 years of Orchid building. Sadly, 1959 was the last active year of the Hawaii Orchid Society.

January 10, 1981

American Orchid Society Hawaii Regional Judging Background

by J. Milton Warne [13]

In the summer of 1955 the Oahu Orchid Growers Association proposed to the American Orchid Society a list of persons to be qualified as AOS judges. These were William Kirch, Oscar M. Kirch, Benjamin Kodama, Masatoshi Miyamoto, John K. Noa, Sr., J. Milton Warne and Robert E. Warne.

On October 8, 1955, the Trustees of the AOS voted to certify "the seven candidates recommended by your organization, and in addition, Mr. Herbert C. Shipman", according to a letter from Gordon Dillon, AOS Executive Secretary.

Oahu Orchid Growers Association was an organization of commercial growers only which carried on for a number of years and was finally dissolved. The remaining funds were donated to the Hawaii Regional Judging Center. I was President and Ben Kodama the Secretary of the Association.

In 1955 when Gordon Dillon visited Honolulu and suggested extending AOS judging here, as was being done in other areas of the U.S. He explained the process was for a sponsoring organization to recommend names to the Trustees for approval or rejection as qualified for orchid judges.

This proposition was accepted by the Oahu Orchid Growers Association and it was voted to recommend those who were prominent at that time. I do not have a copy of the letter that was sent, but do have the letter from the American Orchid Society dated October 31, 1955, announcing the action by the Trustees in approving the list.

The letter informing me officially of my certification as a judge was dated October 18, 1955. I presume that the others were notified at the same time. We were requested to send in a letter of acceptance. There was AOS judging at the World Orchid Conference Show at the Academy of Arts in 1957, but no regular judging at that time.There was a need to let time go by for the local people to accept the AOS. The Pacific Orchid Society had done judging in 1941 and the Honolulu Orchid Society had established a judging system after the war before the AOS offered the service in Hawaii. However, there was no opposition so far as I know.

While the Oahu Orchid Growers Association instigated the first action by the AOS here, the Association did not become the official sponsor of the Region. The Hawaii Region was set up without such an organization to back it up.

1981

The Origin of American Orchid Society Judging in Hawaii

by Dr. T. David Woo [14]

Originally, this was to have been a record of how American Orchid Society Judging started in Hawaii. To do this, the activities of the early orchid hobbyists and growers each were researched and documented, in order to separate these from fragile memory or hearsay, as was usually the case.

Even many judges of the present American Orchid Society, Hawaii Regional Judging and its Supplemental Judging Centers are ignorant of the history of the early events that produced our present state of Judging as enjoyed in Hawaii, for none has been written so far.

We find that in 1955, Mr. Gordan Dillon, Executive Secretary of the American Orchid Society, Inc. came to Hawaii to stimulate and consolidate the orchidists and hobbyists and commercial growers toward promoting a program of American Orchid Society Judging. It was presumed that the time was right for such a movement because orchid culture was fast becoming an established floral industry shortly.

The existent "Oahu Growers' Association" was first approached and AOS Judging was proposed in 1955, and a panel of judges was recommended. These were listed as William Kirch, Oscar M. Kirsch, Benjamin Kodama, Masatoshi Miyamoto, John K. Noa, J. Milton Warne, Robert E. Warne and Herbert C. Shipman. They were all certified by the AOS in 1961. When this association decided to disband, the program was picked up by the Hawaiian Orchid Societies, Inc.

The Hawaii Orchid Societies, Inc. had been organized in 1955 to sponsor formal monthly judging sessions according to AOS standards. These were held at Hinke Hall, College of Tropical Agriculture, University of Hawaii at 7:30 P.M. Its officers consisted of Chairman, Rev. Masao Yamada; Vice-Chairman, Robert Kennedy; Clerk, Isao Takemoto; Photographer, Masatoshi Miyamoto. Other members included Kalfred Yee, H. Chadsay Penhallow, Oscar Kirsch, and Yoshito Inouye. In 1961, their minutes showed that the following were elevated to Permanent Judge Status: H. Chadsay Penhallow, Robert Kennedy, J. Scott Pratt. Probationary Judges named were: Hayato Tanaka, Masaya Miyao, Mrs. Alexander Bowman, Kazuma Nishimura and Francis Ishikawa.

Second World Orchid Conference, Sept. 19-23, 1957, Honolulu, Hawaii. This premiere event was staged at the Honolulu Academy of Arts with a spectacular orchid show which was attended by prominent Orchidologists from all over the world. There were over 1,000 registrants and over 150 exhibitors. A very impressive program of scientific sessions by 75 speakers was held at the Kaiser Dome, Hawaiian Village.

All this was a tribute to Dr. John Herbert Beaumont who was General Chairman of the Joint Planning Committee of the Second World Orchid Conference and President of the Hawaiian Orchid Societies, Inc. and who unfortunately passed away on July 16, 1957 before he was able to see the fruits of his labor. He was ably succeeded by H. Chadsay Penhallow who chaired the committees and guided them to their fruition as the Second World Orchid Conference, which

became history. For more details of this event, one is referred to the Proceedings of the Second World Orchid Conference, printed by the Harvard University Printing Office, Cambridge, Mass. 1958, obtainable from the American Orchid Society, Inc.

American Orchid Society, Hawaii Regional Judging Center: When the AOS formally created the Hawaii Regional Judging for Honolulu in 1961, the monthly judging sessions were moved to the Foster Botanic Gardens on the fourth Sunday of each month at 2:00 P.M.

Incidentally, by this motion it absorbed and consolidated the Orchid Digest Corporation (ODC) judging system in 1958 into one, known as the AOS, Inc. Judging Program. The Handbook on Judging and Exhibition of the American Orchid Society, Inc. was used as the standard procedure.

Subsequently, two Supplementary Judging Centers were authorized in 1968. They were the Hilo Supplementary Judging Center (Hawaii), and the Lahaina Supplementary Judging Center (Maui).

In addition to their monthly judging sessions, a semiannual meeting (Jan.) and an Annual meeting (July) of the whole judging area were scheduled according to AOS requirements. Appropriate reports were regularly sent to the American Orchid Society, Inc. We were accorded representation on the Board of Trustees, Committee on Awards, Committee on Affiliated Societies and other special committees as openings were available.

At the present time, for the Honolulu Regional Judging Center, there are 13 accredited judges, 2 probationary judges, 6 student judges and 4 Emeritus Judges.

For the Hilo Supplementary Judging Center, there are 10 Accredited Judges, 1 Probationary Judge, and 2 student judges.

For the Lahaina Supplementary Judging Center, there are 15 Accredited Judges and 3 Student Judges.

In 1981, the following awards were recorded:

Honolulu Regional Center:
9 AM; 30 HCC; 1 JC, 3 Bronze Trophies

Hilo Supplementary Judging Center (Hawaii):
5 AM; 11 HCC.

Lahaina Supplementary Judging Center (Maui):
12 AM; 2 HCC.

There are 16 Orchid Societies in Hawaii and they are all affiliated with the American Orchid Society, Inc. These societies each stage their annual orchid shows to educate the public and to spread the popularity of Orchids in Hawaii.

Since the presentation of this paper, the members of the Hawaii Regional Judging Center thought that the scope of subject should be expanded into "The History of Orchids in Hawaii".

1981

Orchid Judging on the Island of Hawaii (Hilo)

by Dr. T. David Woo [15]

The Hawaiian Islands, being blessed with balmy air and much liquid sunshine, have developed a land lush with verdant foliage and much greenery within their habitat, but nary an abundance of orchids as we know them today. At least, none as being indigenous in the wilds to induce safaris to be publicized as tour possibilities. In fact, all our orchids have been imported at one time or another.

We owe the pioneers of orchid fanciers like the Shipman's, Hirose's, Yoshimura's, Kono's, Byran's, Pratt's, Anderson's, Mitchell's, Carlsmith's, and a host of others for their original efforts to introduce and grow these exotic flowers on the Big Island.

Eventually, the orchid fever became epidemic, for climatic conditions made cultivation in backyards so simple and easy.

As collections grew, some commercial nurseries came into the field and it was not too long afterwards that orchid clubs started to form. With it came the orchid shows where outstanding plants were displayed and admired by the public.

One would hear that Mr. Kono's V. sanderana was competitive with that of Dr. Nishimura's, or that Mr. Ota's Rothschildiana is as good as Ogawa's, and so forth. Hybridization has already begun then, and good sire plants were eagerly sought after.

Originally, there was the Hawaii Orchid Society, made up of the elite in the orchid community. This later was to be supplanted by the formation of the Hilo Orchid Society (Hui Okika O' Hilo), consisting of several "Pupule Orchid" members from the Jewel Box in Hilo.

Early commercial nurseries in operation in Hilo were Hirose's, Yoshimura's, Kono's, Ogawa's, Ota's, Miyao's, Smale's, and others. Hilo was gradually getting a reputation as the "Vanda Capital of the World." The "Princess Joaquim" orchids and the "Mauna Loa Orchid" leis became synonymous as orchids of Hawaii in the tourist world.

It became evident about this time that orchid judging could be an asset to the budding orchid industry. However, there had been a panel of American Orchid Society judges existent in Honolulu since 1962, where AOS judging was conducted. Mr. Herbert C. Shipman was the lone certified AOS judge in Hilo. A group of Probationary Judges was named for Hawaii which consisted of: Hayato Tanaka, Masaya Miyao, Mrs. Alexander Bowman, and Francis Ishikawa, but no regular program of judging existed on the Big Island.

Through the offices of the Hilo Orchid Society, advances were made to the Orchid Digest Corporation as to the possibility of such a program to be instituted for the Island of Hawaii. This was granted and as a result, formal Orchid Judging, according to certain prescribed ODC standards, was first introduced to Hilo in 1967, with a panel of certified orchid judges. Dr. T. David

Woo was installed as the first ODC Regional Chairman for Hilo, Hawaii. Regular judging sessions were held at the ORCHIDARIUM, HAWAII on the second Fridays of the month at 7:30 p.m.

Somehow, through top echelon negotiations between the American Orchid Society and the Orchid Digest Corporation, they saw fit to consolidate all judging under one system and ODC relinquished its jurisdiction in Hawaii. All existing certified judges were accepted into the AOS program in 1968.

Officially, the Hilo Supplemental Judging Region for AOS was created at Hilo, Hawaii in 1968. Dr. T. David Woo was elected as the regional chairman from 1968 to 1973.

1981

PART IV. ORCHID SOCIETY ACTIVITIES

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In Restrospect

by Neva H. Mitchell [16]

When we go back into the past, it is intensely gratifying to note the rapid growth of the Hawaii Orchid Society.

Nine members answered the first roll call on September 26, 1938; two hundred and twenty-three members are currently listed. Our membership is unparalleled in racial extraction; descendants of practically all of the racial groups here in Hawaii are represented in the Society.

During the war years the Society was known as the Hawaii Orchid Club. The change in name conforms to the more generally accepted nomenclature in the orchid circles.

Back in 1940, store exhibits of fifty to sixty plants seemed a real accomplishment. In July of this year, our annual show consisted of over six hundred plants. Through the interim of nine years, many changes have taken place; better flower quality and an ever-increasing number of genera have contributed to this improvement. Because we are blessed with a paradoxical climate - dry, sunshiny beaches and humid, oft snow clad mountains - orchid fanciers grow a wide range of plants on this Island.

Public demand - both local and tourist - have encouraged the Society to hold a two-day summer show. Unique among flower shows is the no admission and the distribution of V. Miss Joaquim Vandas to all of the visitors. This year, many visitors wished to express their appreciation of the show by giving small sums of money; this enabled the Society to donate one hundred and fifty dollars to the Hilo Center for the privilege of using their premises for the show.

The local press and radio stations, the Honolulu newspapers, and mainland airlines have all generously given widespread publicity to our shows.

In July 1948, we collaborated with the Hilo Tribune Herald in publishing a newspaper orchid supplement previous to our annual show.

Participation in other orchid shows and flower shows has always interested our members. For several years, exhibits have been sent to annual joint show of the Pacific Orchid Society, and to the Maui County Fair. Displays of orchids in Hilo's stores helped to celebrate Aloha Week during November 6-12 of this year. The Society also sent an exhibit for the 1949 fall show of the New York Society. Each year the Society has a large orchid section at the Hilo Women's Club flower show. This first participation was in May 1941.

The Society has often been asked to donate orchids for mainland national conventions and for other organizations. In answer to these requests, thousands of blooms have been sent.

This year the Society contributed towards a silver trophy for the best American-raised seedling flowering for the first time during the New York Horticultural Society's fall flower show. This trophy was given by affiliated societies.

Through the years, the Society has accumulated a complete file of current orchid periodicals and reference books for the orchid shelf at the Hawaii County Library. This material is also available to the public.

The Society, on February 5, 1947, joined other territorial orchid societies in petitioning the Territorial Board of Agriculture and Forestry for enactment of a rigid quarantine to combat the infiltration of the orchid pest known as Tenthecoris bicolor. The petition asked for the quarantine of incoming domestic and foreign orchids, an inspection of plants transferred between islands, the establishment of territorial and private quarantine houses, and the education of the general public regarding the dangers involved in promiscuous transference of orchidaceous material between islands without inspection.

On October 8, 1948, the Society received its certificate of affiliation with the American Orchid Society, Incorporated. We are looking forward to the forthcoming program material which is being developed for the use of the affiliated groups.

Several well-known mainland orchidists have visited our Island; the late Dr. Edward A. White, former professor emeritus at Cornell University, was here in November of 1939. Mr. and Mrs. Rodney Wilcox Jones visited us in May 1947, when Mr. Jones was president of the American Orchid Society. Mr. Edward A. Manda also came in 1947 - in September. During January of 1948, Mr. and Mrs. Clint McDade were here. This year (1950) Mr. Ralph R. Kiesewetter was our visitor. The Society has profited immeasurably from the information given by these distinguished visitors. We all regret that the Society is not privileged to entertain more mainland growers.

A new project of the Society is the Hawaii Orchid Bulletin. The first publication of two thousand copies made its debut on July 6, 1949. Present plans call for two issues a year. The Bulletin is geared to meet the needs of orchid enthusiasts in Hawaii, but other readers will also find it profitable.

Officers for 1949 were: president, Hayato Tanaka; vice-president, William Ferreira; secretary, Mrs. Glenn G. Mitchell; treasurer, Sadawo Akiyama; two-year directors, Mack Odo and M. S. Cordeiro; one-year directors, Ray Walker and Alexander Bowman; program chairman, Horace Kawamura; membership chairmam, Masao Yamada; table exhibit chairman, Glenn G. Mitchell; annual show co-chairman, S. K. Oda and Y. Hirose; bulletin editor, Takumi Kono, bulletin business manager, James Hamasaki; store exhibit chairman, M. S. Cordeiro; and nominating chairman, Charles S. Putnam. The Society's 1949 activities now belong to the past.

A colorful installation ceremony followed the election of officers at the annual dinner meeting on November 2 at the Hilo Hotel. Artistic Vanda leis were presented to the outgoing and incoming officers. The 1950 officers are: president, Herbert C. Shipman; vice-president, Glenn G. Mitchell; secretary, Mrs. Glenn G. Mitchell; treasurer, Shigeru Ushijima; two-year directors, Mrs. Orlando H. Lyman and Mark Yamanaka; one-year directors, Mack Odo and M. S. Cordeiro.

From this backward look, it becomes evident that the Hawaii Orchid Society has definitely "arrived." Sound leadership and cooperation were responsible for this. The same factors should insure an even more prosperous and useful future.

1950

Hawaii Orchid Show

by Wallace H. Otaguro [17]

The Fourth Annual Hawaii Orchid Show, co-sponsored by the Honolulu Orchid Society and the Pacific Orchid Society of Hawaii, was staged at the Honolulu Academy of Arts Building, a building dedicated to fine arts by the kamaaina Cooke family. The show was held in conjuction with the annual Aloha Week Festival on October 27, 28 and the 29th. Thousands of people enjoyed the many displays of the world's most beautiful flower -- Orchids.

The writer had attended all of the past shows and he concluded that the 1950 Hawaii Orchid Show is the best to date. A guide informed the writer that some 140 individual orchid growers had participated in this show, exhibiting 1111 plants. Exhibitors included two rural orchid societies, the Ewa and the Wahiawa, three from Hilo, Hawaii, and three from the mainland United States.

The following paragraphs will be an attempt, within space limitations, to present a sketchy description of the various exhibits, depicting the highlights by mentioning some of the meritorious plants.

The first space, the display arranged by Mr. Robert Warne, was centered around some of the early blooming Cypripediums like Cyp. Maudiae, Cyp. insigne Sanderae and Cyp. Dervish. One end was predominantly blue with many V. Flammerolles. The opposite end showed some fine V. coerulea, V. Ellen Noa and V. Manila.

Mrs. Lester McCoy's exhibit was well themed. A mass of beautiful Den. phalaenopsis var. White Foam and Phal. Monique made one think of the white crests of the breaking waves out at Mrs. McCoy's residence located on the Beach of Waikiki. The mass of white was flanked on the left with a group of colorful Den. phalaenopsis var. Rosy Pink and V. Lester McCoy. On the right, Dendrobiums added further color.

Miss Wilhelmina Tenney and Mr. William Kirch combined their plants to exhibit a well-planned outdoor orchid garden occupying a 72 square feet. On one end, various species and botanicals like Onc. divaricatum, Onc. curtum, Onc. crispum var. grandiflorum, and Epi. raniferum, were expertly arranged so that they looked as if growing right at the show place. The far end was all white with C. Estelle var. Prima Donna, Cyp. Astarte, Cyp. F. C. Puddle, FCC RHS, Cyp. Boltonii, FCC, and the mid-section, broke into colors with Cyp. Maudiae, Cyp. gigas Corndean Hall var., and Slc. Sunburst. The whole display was superb.

The first display in the Spanish Court was Mr. George Ing's arrangement, mostly of Cattleyas. Noteworthy was the usage of four large plants of V. Ellen Noa in full bloom.

Messrs. John C. Walker and George W. Sumner displayed a gorgeous group of strap-leaved Vandas in their full glory and popularity. The plants were well-grown and many carried as much as four spikes. Among the numerous varieties were V. Mevr. L. Velthuis, V. Rothschildiana, V. Ellen Noa, V. Julia Sideris, and many others.

The Lawrence Chung-Alexander Chang combination utilized the arched

door of the Spanish Court to advantage and displayed the plants effectively. Interesting was the Peristeria elata (Dove orchid). Noteworthy was the fine growth of Den. Taurus. Vandas with Den. undulatum showed well against the door.

The Ewa Orchid Society, the newest of the outlying orchid societies organized in one of the largest sugar plantations, used their principal plant . . . sugar cane . . . for the background of their 64 square foot display. There were many fine Dendrobiums in the far end.

Mrs. Frank C. Atherton's display occupied a 64 square foot space and was nicely decorated with tall palms in the background. The entire space was filled with large plants of Vandas, mostly of the older crosses such as V. Clara Shipman Fisher, V. Puna, V. Kapoho, and the like. Vdnps. Jawaii stood out as one of the rare bi-generic hybrids.

Mr. C. F. Weeber's Vandas and Dendrobiums adorned the boardwalk crossing the Central Court. There were some fine V. Jill Walker, V. Caroline Robinson, Den. Alapali and Den. Wilhelm Stuber along the boardwalk.

The first display in the West Corridor had many very fine Cattleyas staged with dark brocade for the background. Each year Mr. H. M. Tagawa presents the acme of fine Cattleya collection among them being Lc. California fine dark var., C. Varuna, Lc. Balkis var. Superba, Lc. S. J. Bracey, very fine, and Blc. Norman's Bay.

Mr. Goichi Miwa's display was centered around a beautiful Blc. H. Furuhashi, named after the "Flying Fish of Fujiyama". Bc. Nani was also fine. Den. undulatum was superbly grown and bloomed.

Dr. Dai Yen Chang, Mr. George Miranda and Mr. Hung Ung Young pooled their best plants to present a fine display. The Dendrobiums, particularly Den. Salak, Den. Pauline, and Den. Ursula made fine background for the C. Swan, Blc. Nanette, and C. Hassallii X B. Digbyana place in the front.

Iwasaki Orchid Nursery massed numerous Vandas and Dendrobiums in a riot of colors to show the better plants to advantage. Lc. Arnold Kiesewetter, good form and Bc. Endora, owned by Mrs. Edward Tsukamoto, attracted comments. V. Fair Queen was good. Cyc. chlorochilon was rather unusual locally.

In the shadows of the arch, leading to the Children's Court, Mr. J. Milton Warne, as usual, had a very fine display of his own breedings. Lc. Jane Warne selected var., several variations of Lc. Edith Follett, the aloof Lc. Kahilikea, C. Bembridge, were all very nice. Milt. Nuuanu added distinction to his Hawaiiana.

The stage in the Children's Court was transformed into a show of colors with massed display of Dendrobiums and more Dendrobiums. Foster Garden, the municipally-operated orchid garden, under the capable direction of Mr. Colin Potter, who is one of the early proponents of Hawaiian-bred Dendrobiums, exhibited a very fine collection of Dendrobiums. Den. undulatum, in large cement pots, literally with 1000 flowers, presented the perfection of outdoor culture of Dendrobium plants. Den. Caesar, varying from true whites to flushed pink and lavender in colors, was seen in all variations.

Along the footlights of the stage were some very fine plants belonging to individual exhibitors. Mrs. J. T. Pope's Lc. Balkis, Dr. H. Lyon's C. maxima, Mr. Albert Joseph's Lc. Albert Joseph were a few of the noteworthy plants.

The entrance to the Educational Exhibit Room was beautified by Kuhio Florist, whose exhibit had some fine plants. Den. Hula Girl var. Flame and Rntda. Donald MacIntyre were among the best in this group.

The Educational Exhibit Room was well-planned and showed the public many interesting highlights in orchid culture. Table One -- Potting Materials -- showed methods of potting orchids, using different medias for compost. Illustrated were the usage of the old standby osmudine fibres, local tree fern fibres, the mixture of tree fern fibres and volcanic cinders, and finally, planting in crushed rocks, only rocks. Each category was adequately explained with printed cards. Table Two -- Propagation of Orchids -- showed various mean of propagation, both asexual and sexual. Table Three -- Pedigree of Vandas -- had a large board showing the different Vanda hybrids using V. sanderana. Tiny ribbons were stretched from flower to flower to show, i.e., V. sanderana X V. coerulea making V. Rothschildiana, etc. In each case the actual specimen was used for illustration. Besides the V. sanderana flower, species and hybrid flowers were used to illustrate the Pedigree of Vandas.

Table Four -- "Diseases and Insect Control" -- had samples of diseased plants or portions of plants showing the effects of bacterial rots, nematodes, scales, red spiders, thrips, aphids, cockroaches, snails and slugs, and grasshoppers. In the background were the common chemicals and insecticides ordinarily used to combat the problems. Table Five -- "Proper Packing for Shipment" -- had samples of shipping boxes, showing how flowers are packed for shipment. Significantly, the flowers shipped in for the show, from Hirose Nursery of Hilo, Hawaii, were exhibited on this table.

Table Six had some beautiful cut flowers as well as small seedlings flown in from E. W. McLellan Co., of San Francisco. The display was very nice.

Just outside of the Educational Exhibit Room, B. Tanaka Orchid Nursery had their usual fine display in the 64 square foot class. Notable were the eleven variations of V. Walter Dillingham, and the five different plants of V. Honolulu.

Mr. Tadao Kazumura's display had very fine Blc. Sunrise, Bc. Idole alba, and Lc. Luminosa aurea X Blc. Samoset amongst the Cattleya groupings and some beautiful Dendrobiums such as Den. May Neal, bronze.

The Lecture Room was transformed into an Orchid Show Room. The plants were grouped in groupings of various genera. The first group had all Vandas. The second grouping was a mixture of Oncidiums, Dendrobiums and Cattleya hybrids. The third group featured Dendrobiums, mostly of the Den. phalaenopsis type. The fourth group had more Vandaceous hybrids. In the fifth grouping of miscellaneous genera, Mr. Colin Potter's Den. gouldii was a beautiful specimen with hundreds of flowers. In this group was displayed the Cypripedium flowers shipped from Armacost and Royston of Los Angeles, Calif. The best of this grouping was the beautiful spike of V. Rothschildiana displayed by Mr. T. Ogawa of Hilo, Hawaii.

In the sixth grouping were mostly Cattleyas, Dendrobiums and Phalaenopsis. Vanda hybrids of all mixtures made up the seventh grouping of

the General Display.

Mr. O. M. Kirsch's display occupied the right corner of the Chinese Court. With Vandas, many V. Manilas, for the background, this display was the center of yearning with the rare Rnthps. Kamehameha (Ren. storiei X Phal. stuartiana) and Rntda. Palolo (V. Burgeffii X Ren. storiei). The most outstanding flower in this display was the Lc. Rosa Kirsch, a dark flower of good conformity blooming on a typical C. Rembrandt long spike. Lc. Rosa Kirsch is Mr. Kirsch's own hybrid, a cross of C. Rembrandt and Lc. Pasadena.

The left corner of the Chinese Court was reminiscent of a wild Vanda bush. Dr. J. H. Beaumont and Mr. A. J. Hebert had combined their Vandaceous collections to make this all-Vanda display.

H. Patterson and Sons of Bergenfield, N. J., had a very comprehensive display. The center of the display was stepped up in three stages with miniature steps and railings, showing the stage of culture from flask to blooming size plants, which were flown in from New Jersey.

The Wahiawa Orchid Society members occupied a 64 square foot space to display a very fine arrangement of everything. The Wahiawa district is the home of the world-renowned pineapples. Appropriately, pineapples, both fruits and foliage, were used to advantage in the display.

Kodama Orchid Nursery also occupied a 64 square foot space to display many fine Cattleya hybrids. Lc. Lustre var. Westonbirt and Blc. Nanette were very fine. However, the bulk of this display was made up of Benjamin T. Kodama's own breedings, Blc. Benjamin Kodama, V. Judith Nishimura and others.

The Noa's display was under their business name -- Greenhouse Hawaii. This exhibit occupied the last vantage site of the show grounds. Many tarried long, to admire, for the last time before leaving, the gorgeous displays. John and Ellen Noa had their usual fine array of Vandas and Cattleyas. Mention must be made of a particularly outstanding V. Ellen Noa var. Kaulana, the pride of the Noa collection.

My Impressions of the All-Hawaii Orchid Show

by Etta Gray, M.D. [18]

It was indeed a great privilege to attend the Orchid Show of the Honolulu Orchid Society and the Pacific Orchid Society in Honolulu the early part of October.

This beautiful Orchid Show had for its setting the spacious and well appointed Honolulu Academy of Arts. The unique building with the many large rooms and spreading courts lends itself in a wonderful way for display of these exotic flowers.

One would perhaps never see a show where only orchids were exhibited except in the Islands, "the Jewels of the Pacific." I was impressed with the large number of exhibits, the orchids in profusion of all varieties and the generosity of the numerous exhibitors, who showed their choicest orchid plants in flower. Where over 1200 orchid plants in flower were displayed it certainly was a great credit to these Societies and their members.

Entering the show upon a court with individual orchid displays all around giving glorious color, the first view of the show was most impressive.

The exhibits of Cattleya orchids was most outstanding. To name a few which held one's attention: Lc. Suez; C. Terry Wayne Alba; C. Clara Hoshino, a good yellow; also Blc. Benjamin Kodama; C. Bow Bells, very fine form and texture; the C. Bob Betts which received AM of H.O.S.; a very large Bc. Mrs. J. Leeman x Lc. Sam Houston of unusual texture; a fine Sandra Ozzella; Bc. Olympus, and Bc. Nanette both outstanding exhibits; Blc. Wren with very dark lip; Blc. Kenneth Tanaka and many Enid alba were shown in one exhibit.

In the Chinese rooms were many exhibits of specimen plants. Each specimen was placed on a beautiful Chinese table making the whole a most outstanding and delightful room and showing the orchids in a charming manner.

Very interesting was the exhibit of C. Rembrandt and its cross (C. Rembrandt x Lc. Pasadena) Lc. Rosa Kirsch. On some of the plants the flowers resembled the C. Rembrandt, on others of Lc. Pasadena were evident. This cross was made by Oscar Kirsch.

In all exhibits there was a profusion of the airy sprays of Dendrobium. There is no orchid that lends itself to display as do these exotic blooms. The whites seem to predominate but there were also the beautiful very dark Dendrobium sprays and the various hues of lighter color, such as Den. Hawaii Nui; Den. Hawaii (Fiji); Den. Louis Bleriot; Den. Lady Constance; the newer Den. May Neal and Den. Caesar. So many other varieties I am unable to recall them.

Then there were Vandas. They were so beautiful and breath-taking one just was thrilled at the sight. Only in Honolulu could one ever view such an exhibit. Masses of Vandas with their exotic and varied colored blooms were displayed in most of the exhibits. Some exhibits were Vandas alone and others exhibited Vandas with other species.

The V. sanderana AM H.O.S. was very wonderful, a large plant with three sprays and 24 blooming flowers and many buds. The color and form of the flower was all that could be desired, so beautiful and exotic.

In one exhibit on the stage in the Children's Court was the sweep of blue Vandas, many varieties; perhaps not such large flowers as the V. Rothschildiana, but the whole effect of a sweep of blue Vandas across one side of the stage certainly was most impressive and above on the limb of the tree were the fluttering white Dendrobiums, like white butterflies in the air. The effect was most enchanting. The large varieties and variations of Vandas shown could only be found in a tropical isle where for so many years hybridizing has been done to perfect this beautiful exotic orchid.

V. sanderana was evident in many exhibits, very fine specimens; also the beautiful blue V. Rothschildiana, V. Herziana and so many more blue varieties. V. Frank Scudder, V. W. F. Dillingham, pink color; V. Ohuohu, V. Honolulu, V. Manila, V. Caroline Robinson, V. Haleakala were also seen. Space does not allow one to sing the praises of the Vandas, but I must say the Honolulu Orchid Show seemed to be built around the exhibits of Vanda and Dendrobium. I am sure nowhere else in the world could such a profusion and abundance of these lovely exotic blooms be shown.

Hawaii Calls - With Show and Meetings[19]

All members of the American Orchid Society, its Affiliated Societies, and orchid enthusiasts everywhere, are cordially invited to attend the Hawaiian Orchid Societies, Inc., Orchid Show which will be held in Honolulu to coincide with the visit of the Trustees and Conference Tour groups on their way to the Fourth World Orchid Conference in Singapore.

The tentative schedule of activities follows:

Sunday, September 22, 1963
All day - Hawaiian Orchid Societies stage exhibits for show

Monday, September 23, 1963
Morning - Complete staging of exhibits and general displays
Noon - Trustees and other visitors arrive from Mainland
3:00 p.m. - Judging of Orchid Show
6:30 p.m. - No-host Aloha Buffet at Reef Hotel
- Visit to Orchid Show

Tuesday, September 24, 1963
9:00-12:00 noon - Judges' Forum (All A.O.S. and all Honolulu Orchid Society Judges invited)
Afternoon - Free (individuals may arrange for nursery tours)
5:30- 7:00 p.m. - Dinner-meeting of Affiliated Societies' Presidents
7:30-10:30 p.m. - Pre-Conference Program

Wednesday, September 25, 1963
Morning and afternoon free
6:30 p.m. - Chinese Banquet at Hawaiian Village Long House
8:30- 9:00 p.m. - Ground transportation to airport
10:00 p.m. - Visitors on Tour #1 depart for Sydney, Australia

The Reef Hotel will be headquarters. Advance reservations for activities can be sent to Mr. H. Chadsey Penhallow, Box 1206, Ewa, Oahu, Hawaii.

AOS Hawaii Regional Judging at New Location [20]

V. Mabelmae Kamahele 'Elizabeth' (V. Ohuohu x V. sanderana) was awarded an AM AOS after scoring 82.7 points at the AOS regional judging at Foster Garden on Sunday, May 15, 1966. It was flowered by Mr. Wilbur Chang of 45-111 C Wm. Henry Road, Kaneohe, Oahu.

The AOS regional judging was done for the first time outside of Henke Hall at the Foster Botanical Garden and first time for day time judging. For the rest of the year the regional judging will be held Sunday afternoon at the Foster Botanical Garden in the potting shed.

V. Mabelmae Kamahele 'Elizabeth' AM AOS '66 was a nicely grown large plant with a well rounded spike of twenty-one flowers of very heavy substance. The flower measured 4-1/2 inches - petal, 1-7/8" x 2-1/8"; dorsal sepal, 2" x 2-3/8"; lateral sepal, 2-5/8" x 2-1/2"; and lip, 1" x 1-1/8".

V. Hilo Blue x V. Onomea 'Hilo' AM HOS scored 77.4 points for an HCC AOS. Its variety was decided as 'Ann E. Marcus' and it was grown by Mr. Aaron G. Marcus of 427 Portlock Road.

The plant had a single spike of nine flowers of attractive clear light blue with much tessallation, lower segments of darker gray-blue. The flower measured 4 inches - petal, 1-5/8" x 2"; dorsal sepal, 2" x 2-1/8"; lateral sepal, 2-1/8" x 2-1/4"; and lip 7/8" x 1".

Three other flowers were very nice but just did not make the award.

Already History – Neighbor Islands Orchid News

by Toy Len Chang [21]

Orchid growing as a hobby and as a commercial venture have been rewarding undertakings for many in the Aloha State, yet how many have visited the neighbor islands and observed the habits of growth, spectacular blossoms and unusual potting techniques? Perhaps some have been too busy with daily routine to visit orchidists elsewhere and even within their own community yet often wondered what's going on.

Readers may be interested in orchid groups on the neighbor islands and their meeting dates and activities.

MAUI ORCHID SOCIETY

With a paid-up membership of 114 the society meets every 4th Tuesday, monthly, at the Kahului Library at 7:30 P.M. The officers leading the club are: President, Noboru Koito; 1st. Vice-President, Kazuma Nishimura; 2nd. Vice-President, Boss Yokouchi; Secretary, Mrs. Miriam Higashi; Treasurer, Jimmy Yamashita; Sgt. at Arms, Henry Furumizo. Committee chairmen are: Program, Kazuma Nishimura; Show, Kiyoshi Kijima; and Awards, Norman Nakamura.

An orchid show was held in the spring at the new First National Bank building in Wailuku where the beautiful orchid show and the attractive new building enhanced each other.

A second orchid show followed in summer and was held at the Kahului Shopping Center where the plants were set out on display in a more natural setting under the huge monkey pod tree. Outstanding flowers in the show were: Ascda. Meda Arnold, Best in Show, displayed by H. Furumizo; C. Gloriett Superba x C. Stephen Sanders owned by K. Muroki, Best of Cattleya; 2nd place, Blc. Mem. Crispin Rosales x Blc. Norman's Bay shown by F. Sorayama; and 3rd place, C. harrisoniana x C. forbesii grown by Takakura Orchids; Best of Vanda, V. Ohuohu displayed by N. Orikasa, 2nd place, V. Eisenhower x V. sanderana) flowered by N. Orikasa, and 3rd place V. Eisenhower, grown by F. Sorayama. The Best of Dendrobium was Den. Julie C. Furumizo displayed by Boss Yokouchi, 2nd place, Den. undulatum 'Broomfieldii' flowered by Boss Yokouchi, and 3rd. Den. Neo-Hawaii grown by K. Muroki. Best of Other Genera was Ascda. Meda Arnold displayed by H. Furumizo, 2nd place, Ren. Jo Ann shown by N. Orikasa and 3rd place, Asctm. Ophelia grown by Takakura Orchids.

To encourage beginners there was the Novice category and the Best was V. Nellie Morley displayed by H. Hiranaga, 2nd place, Den. Rose Chong shown by S. Watanabe, and 3rd place, Den. unduiatum 'Broomfieldii' grown by M. Sasada.

LAHAINA ORCHID SOCIETY

There seems to be growing interest and much activity on Maui and to accommodate those living across the West Maui mountains in Lahaina section a

new orchid club, "Lahaina Orchid Society" with fifty membership was organized under the leadership of Kazuma Nishimura, 1st Vice-President of Maui Orchid Society. The officers of the new group are: President - Kenichi Nakata, Secretary - Mrs. Takai Takuchi and Treasurer - Albert Y. Nobu. At present the membership is mostly from the fair sex, meeting at Ed's Garden Supply on the 1st Wednesday of the month.

HILO ORCHID SOCIETY

Formerly the Hui Okika o Hilo the rejuvinated society meets monthly on the 3rd Monday at the University of Hawaii campus in Hilo. The new officers are: President - Dr. David Woo, Vice-President - Harold Fujimoto, Secretary - Mrs. Margaret Rogers, and Treasurer - Masaya Miyao.

They have resumed the annual Fourth of July orchid show at the Cow Palace, their regular show place, next to the Mooheau Park. Judging of the flowers are by AOS standards.

All Hawaii Flower Show [22]

Milt. Bert Fields was the Best Orchid - All Genera, the grand prize winner in the Pacific Orchid Society All-Hawaii Flower Show, March 29-31, 1968 at the H.I.C. exhibit hall. The beautiful red Miltonia was grown and displayed by Mr. Hajime Ono of Wahiawa. Listening on the sidelines to the comments by viewers Milt. Bert Fields was a very good choice as Best in Show. It was granted the Award of Merit/AOS, the AOS Cultural Commendation and judged Best of Other Genera. It must have lured the judges and greatly influenced them to award the AOS Bronze Medal for meritorious orchid display in the show. Mr. Ono with Mr. Wallace Nakamoto, must be given some accolade, arranged the beautiful, colorful and award winning display, which also won the Best Commercial Exhibit, medium size. When finally after the judging and trophies were placed it seemed there were more trophies than plants.

The Lester McCoy Orchid Nursery won the Best Commercial Exhibit, large size, putting up a grand display of Phalaenopsis, white, pink and yellow with the attractive Phal. Queen Emma 'Honolulu' AM/AOS, HOS, white with red lip, as the center of the display.

The Honolulu Orchid Society, Inc. won first place in the Society Exhibit, large. It was arranged by President Edward C. C. Wong ably assisted by Mr. Francis "Stone" Tsukiyama, Mr. Richard Takase and the Jack Chings. In the display Mr. and Mrs. Jack Chings' Den. Golden Hill scored HCC/AOS and was judged Best of Dendrobiums. It is a Den. May Neal 'Duke' x Den. schulleri 'Queen' hybrid and the plant had three spikes, 27 to 28 - 2" pretty lime-yellow flowers of clean color.

The Best Cattleya was a beautiful C. Princess Bells with two bright white flower that scored AM/AOS. It was flowers by Mr. Hajime Hironaka and displayed in a most unique arrangement prepared by Mr. Ernest Tanaka. The beautiful C. Princess Bells 'Bettys Bouquet' AM/AOS was crossed with another grand white C. Princess Bells 'Waikiki Surf' AM/HOS to develop this trophy winning offspring.

The Best Vanda was a delicate pink or pastel pink Ascda. Sunkist 'Waianae' that scored AM/AOS for M. Miyamoto-Orchids in the Waianae Orchid Society display. There was another Ascda. Sunkist in another section of the same display that scored AM/AOS with flat 3"x3" flower of warm yellow-brown and very, very attractive. To the writer this flower was just as good or better than the trophy winner but the spike lost the verdict for it. Mr. Miyamoto had an Ascda. Meda Arnold of deep copper red. Mrs. Jack Ching displayed an Ascda. Yip Sum Wah that scored HCC/AOS, a 10" plant with a 12" spike of 23 - 2" red flowers.

Aiea Orchid Club display was a grand mound of beautiful large white Phalaenopses with nice yellow Dendrobiums like Den. Joyce Uehara HCC/AOS grown by Mr. Robert Aoki. Pokai Bay Orchid Society arranged their display around a tree fern Tiki with a nicely flowered specimen plants of Den. aggregatum and C. skinneri.

Dr. and Mrs. T. Fujiwara made the Best Hobbyist exhibit (small) with their fine collection of Paphiopedillums (Cyps.). Their Cyp. Rothschildiana (zebra-striped) won Best of Cypripedium and Galiandra devonianum won Best of

Other Genera, second place.

Miss Carey D. Miller displayed a collection of miniatures and "Almost Minis" which was very interesting and educational. Mrs. Clarence Chang made an exceptional display to show the "ignored and forgotten, small, teenie weenie, flowers in arrangements - where did she find all those flowers and the wee holders all different; they were cute, very pretty and colorful.

Mr. Robert Warne's Haemaria discolor 'Nigricans' was a superbly grown plant recognized by the judges and awarded a trophy. Try growing one someday and you will find them growing smaller and smaller if you don't know how to grow them, it is not so easy.

Ewa Orchid Society display was awarded Best Society exhibit, medium.

A fine collection of cut flowers, beautiful green and brown Cypripediums from Rod McLellan Co. of San Francisco was awarded a trophy. Beall Greenhouse Co. from Vashon, Washington sent large white and lavender Cattleyas and a handsome spike of beautiful Cym. Seattle Heights 'Cove.' Mr. Herbert C. Shipman of Volcano, Hawaii showed his nice Cypripediums and Cymbidiums to enhance the show.

C. Clear Morn with seventeen - 6" clear white flowers won Cultural Commendation. Imua! Mrs. H. Beaumont.

The following groups and individuals made exhibits to help make the show a success: Aiea Orchid Club, Ewa Orchid Society, Honolulu Orchid Society, Inc., Waianae Orchid Society, Waipahu Orchid Society, Pokai Bay Orchid Society, Windward Orchid Society, Pacific Orchid Society general display, Mrs. Lester McCoy Orchids, Woodlawn Nursery, Dr. and Mrs. Thomas Fujiwara, Mr. Ernest Tanaka, Miss Carey D. Miller, Mrs. Clarence Chang, Wallace Nakamoto-Hajime Ono, Beall Greenhouse Co., Rod McLellan Co., Mr. Herbert C. Shipman, Florist and Flower Growers Assn. of Hawaii, Bromeliad Group, Bonsai Group, Cactus and Succulent Society of Hawaii, Garden Club of Hawaii, Instructors of Japanese Schools of Floral Arrangements, Hawaii Assn. of Nurserymen, University of Hawaii, British Overseas Airways Corporation, Pan American World Airways and Niu Nursery.

16th Annual Hilo Orchid Society Show

by Mrs. M. H. Chang [23]

OH! AH! MAGNIFICENT! OUTSTANDING! These were some of the expressions heard as visitors from far and wide stopped by to enjoy the orchid show on the grounds of the Orchidarium during July 4 - July 7 for the 16th Annual Hilo Orchid Society Show. The show was chaired by Messers. Knute Hernlund and Kenneth Fujiyama. The 16th was the show that saw many quality blossoms brought forth in a long while. Many guests were treated to a second treat in that Madame Pele put on her awesome display of volcanic activity before finally grinding to a halt after the close of the orchid show. Approximately 2000 to 3000 visitors from the corners of the earth stopped by to take in the display of various genera of orchids.

American Orchid Society Judging was conducted for the show and judges flew in from the Island of Oahu to participate in the judging. Making the trip from Honolulu were Messers. J. Milton Warne, Hawaii Regional Judging Chairman and Duke Paraz, Vice-Chairman of Judging in Honolulu. Other AOS Judges who participated were: Dr. T. David Woo, Vice-Chairman of Judging (Hilo), Knute Hernlund, Dr. M. H. Chang, Masaya Miyao, Hayato Tanaka, and Edward Tanabe.

This was the second time that the annual orchid show was held at the Orchidarium and the natural setting of the area which includes permanently placed display stands, a pond filled with colorful carps and orchid plants placed permanently throughout the area. Individual display areas are readily accessible and modifiable for individual tastes. This was shown most dramatically by the award winning display entitled "Evolution of an Orchid" exhibited by Island Orchids, Inc. The 60 sq. ft. display depicted a Cattleya seed pod and the gradual size plants from flask to bloom. The judges award this display the AOS Bronze Show Trophy for the most outstanding display.

Best of Show honors went to Mr. Charles Rodillas' Lc. Mamo Gold 'Radiant' which was awarded as AM/AOS by the judges. This hybrid also took the honors as the Best of Cattleya and is best described as a 6-1/4" flower with clear lemon yellow sepals and petals. The lip was dark lavender with gold veining in the throat.

Best of Strap-leaf Vandas went to Mr. Photi Chanyakohol of Thailand for his V. Rothschildiana 'Apivat' which was also awarded an AM/AOS. This plant held a magnificent spike of 16 five inch bluish purple flowers with dark purple veining. V. Rothschildiana 'Apivat' AM/AOS was also judged the Best Hawaiian Bred Seedling.

Best of Phalaenopsis Phal. Terri Cook 'Mt. Fujii' AM/AOS owned by T. Ogawa Orchids.

Best of Miscellaneous was Epc. Rosita 'Magenta' AM/ODC owned by M. Miyao Orchids.

Best of Vanda (semi-terete) was V. Agnes Joaquim 'Polyploid' owned by M. Miyao Orchids.

Best of Dendrobiums was Den. Tomie owned by Carl Saito.

Best of "Kakio" or Odd Orchid was a Stanhopea species shown by Mrs. Mary Oliveira.

Mr. Edmund Cambra, Hilo's foremost amateur orchid grower walked off with the Best Amateur Display and the Best of Amateur Blossom (Any Genera) with his Blc. Fred Stewart which was blooming for the first time.

Other plants awarded were:

V. Eisensander 'Chieftain' AM/AOS owned by Masaya Miyao. This plant had 2 spikes of 10 each peach brown flowers of 4" natural spread. Size and shape of these flowers were outstanding. A hybrid of (Lc. Waianae Sunset 'Pokai' AM/AOS x Blc. Llewellyn) 'Hatsu' was awarded an HCC/AOS. This plant had 2 flowers of 5-1/4" which was dark salmon colored petals and sepals with a very irridescent lavender lip. This plant was owned by Hatsuichi Tsugawa. Another HCC/AOS was awarded to V. Nancy Rodillas 'Waimanalo' owned by Charles Rodillas. This plant had one spike of 10 reddish-brown flowers with maroon tasselations. The color of this particular flower was most outstanding.

All in all this was an outstanding show for the Hilo Orchid Society and many heartfelt thanks are extended to the General Co-Chairmen Knute Hernlund and Ken Fujiyama, Mary Hernlund and her co-workers who so artistically handled the corsage making; Shige Hashimoto and Harry Aratani without whom the show could never go on and all the many exhibitors who helped to make the 16th Annual Orchid Show so successful.

(680 Lama Street, Hilo, Hawaii 96720)

H.O.S. Display, First at Windward [24]

The Windward Orchid Show, August 1-3, 1968 was set up as orchid islands in the cafeteria, Castle High, Kaneohe. It was a big improvement in appearance, spaciousness and visibility but still rather crowded with flowers and irregular. In spite of all this HOS display was awarded a trophy for Best Extra-large display. Pokai Bay Orchid Society winner large display Hui Okika O Kunia, medium and Waipahu Orchid Society, small.

Mr. Jerry Iwamoto had the best extra-large display among the hobbyists. Mr. Wilbur Chang and Mr. Ted Sumida teamed-up to set up a large display winner and Mrs. Masao Yamada was the small display winner.

Mr. Richard Kaneyama and group made the best display for the novice.

Mr. Jerry Iwamoto's display was awarded the AOS Bronze medal for best display in the show.

The grand winner was Mr. and Mrs. Jack Ching from Waianae. Their Ascda. Meda Arnold 'Twilight' scored 81.9 av. pt. and AM/AOS. The 15" plant had two outstanding spikes 15" long with 24 - 2-1/2" bright orange-red flowers. Mr. Jerry Iwamoto had two Ascda. Yip Sum Wahs scoring 79.0 and 78.3 av. pt. and HCC/AOS. Mrs. M. Yamada had an Ascda. Prince (Portia Doolittle x V. Amoena) that scored 78.6 av. pt. and HCC/AOS and Mr. H. Marugame displayed a unique Dendrobium (Den. Meala x Den. Liholiho) that scored 77.7 av. pt. and HCC/AOS.

Some plants in the show that hit the eye of the writer were: C. Rembrandt x Blc. Llewellyn with three attractive red flowers; Den. Moanalua x Den. Jacquelyn Thomas, sparkling scarlet flowers, upright spike; Lc. Kashmir Ruby, three red-mauve flowers; Den. Joan Tani x Den. gouldii x Den. American Beauty, bright red flowers; C. Pearl Harbor, three sparkling white flowers; Den. Sunset 'Beauty' AM/HOS, AOS, three spikes, bright bronze flowers; Slc. Naomi Kearns 'Sunset Hill' CR/HOS, three flowers, bronze sepal and petal and red velvet lip; Blc. Norman's Bay 'Low' FCC/RHS; one plant, one spike four flowers - two open, two buds and another plant, one spike five flowers - two flowers open, three buds; V. Bonnie Blue Fukumura (V. Pukele x V. coerulea), large blue V. Rothschildiana type flowers, heavy blue tessellation; and Lc. Albert Hienicke, very beautiful yellow.

Orchid Safari to Neighbor Islands

by Richard T. Fujio [25]

On Thursday morning, the Fourth of July, we boarded the Aloha Jet and set out on the safari. The plane was capacity and the flight was very smooth and in a little over half an hour's air-time we landed on General Lyman Field in Hilo. Bwana Paul Okamoto and committee were there to take us around. Edward C. C. Wong and Mordecai Hudson, who had taken the flight a day earlier were there to greet us also.

First we were encamped at the Hilo Hukilau, slightly refreshed and then taken to the Orchidarium on Manono Street. Some familiar faces of Hashimoto, Tanaka, Tanabe, Dr. Woo, Dr. and Mrs. Chang, Mr. and Mrs. Hernlund and many new faces were milling around the beautiful orchids and displays in the open outdoor landscaped garden, one time belonged to Mr. Hayato Tanaka but was taken over by Orchidarium. Only in Hilo can one set up such a display of orchids right out in the open. Soon the judges were gathering with the AOS Hawaii Regional Chairman J. Milton Warne from Honolulu to begin the evaluation of the flowers and plants on display.

While the judging committee was pretty much occupied the rest not involved jumped into cars and scooted over to Ogawa Orchid Nursery, Kilauea Avenue, a few parcels were delivered. The master was out but Mrs. Ogawa permitted us to browse around freely and the gang spotted the plants to pick up later. We did not tarry long however, and after thanking for the privilege, drove on to Sugihara Orchid Nursery, Waiakea Houselots. There were many miniature Vandas and the collecting started, from thumb-pots to flowering sizes in six inch pots. Hirose's Tourist Spot was visited next, the ladies each receiving a pretty orchid corsage. Tom Hirose, developing the orchid section, had gone to Honolulu just the day before so his gracious mother took us around the establishment.

Hoping the judging would be over we were driven back to the Orchidarium. It was nearly completed, placing of the trophies and awards remained. Soon we were taken to the Seven Seas for our luncheon, where each ordered what he wanted from a limited menu. After the repast the judges were requested to huddle for discussion after a judging session and the rest drove back to Orchidarium.

Richard Tanaka Nursery was visited where we saw many V. Nellie Morley and blue strap-leaf Vandas. Both Mr. Tanaka and grower Earl Suyama were out and no dialogue was possible we left there early and drove to Nakagawa Nursery located in the new subdivision in the Panaewa area. Here we saw many beautiful bonsai and ornamental plants more than orchids. Papa Nakagawa's interest seemed to be turning toward the bonsai.

We did not stay long to admire the bonsai for the plans were for an early dinner, scenic drive up to the Kilauea Volcano before sunset while visibility was good so the green lush vegetation and flowers along the highway can be seen and the contrasting barren land around the crater, the vastness of the pit and experience the change of temperature as day passed and darkness gradually engulfed the area.

Everything went along nicely and the visitors were given a treat for the evening entertainment, delight and envy of all tourists - a scenic drive up to Kilauea Volcano and a very nice display of colorful activity in the Halemaumau crater. It was very fortunate to be able to witness such beauty, visible only in Hawaii and a couple of days later the activity ceased we were told. The fountains of molten lava were reported higher than on past days, may have been the last effort of Madame Pele, at least for this time which was considered quite a long duration. As usual the day was nice but the night became cold and chilly and the gang was shivering while enchanted by the grand display.

The next day, Friday, was started with a visit to the Island Orchids, Inc., Kaumana. We were warmly welcomed and had the run of the vast green houses. We were told that Mr. Hernlund is developing a large tract in the Panaewa forest on the Volcano road just opposite the entrance to the Keeau Macadamia nut orchards of Castle and Cooke. (Later in the tour we noticed the ground had been cleared, cement blocks and other material were already on the ground ready to build.)

Many plants, some in sheath with buds ready to bloom were collected here and made ready for shipping. After our Aloha to the Hernlunds and Mr. Goldstein, the manager, we were driven back to Ogawa Nursery and were fortunate this time, the Master was in so there were some dickering and plants exchanged hands, sizes ranging from compots to flowering plants. Larry Lau was attracted by beautiful Jennie Hashimoto, a leggy individual. Skeptical Lau did not bring her home because he was not sure of transplanting such a leggy beauty, however, George Char brought home a very nice division of Blc. Pacific Gem.

Then it was on to the slopes of Wainaku and Mrs. Alexander Bowman and viewed the old and new Vandas still flowering on very solid benches. The young Vandas on the benches between the older plants were producing their first blooms. When the writer first visited Mrs. Bowman some years back the Vandas were out in the open in full sun, however, on this visit all the plants both old and young were under saran, it was interesting to note. We could not inquire why the change of culture and we were very sorry to hear that Mrs. Bowman was very ill and not at home to be around to gab with us. (Hope she is better.)

We had a fast lunch to KK Drive Inn and on to Carl Saito, where we noticed the Dendrobiums have the most royal treatment, under plastic protection and huge fans to draw out the warm air under 10,000 square feet, something many humans would like to have but cannot afford. The plants were very clean and they were growing vigorously tall in troughs of black cinders or finely broken "AA" rock, flower spikes were many and long, flowers were clean and no insect in sight. This must be the result from his experience with another hot house of about the same size with plastic roof to protect from the rain. Both houses were very warm inside, hotter in the older house without the fans. Mr. Saito is in the cut-flower trade. He also had a large lath house of Cattleyas and other genera. There Mordecai Hudson collected some Vandas they were growing wild.

Nobody was home at Miyao's, the greenhouses were unlocked, an open invitation, naturally the gang strolled around, noticed many interesting crosses coming up in compots and flowering plants on benches out in the open. No master, no dialogue, the gang started to move on and the drive to the macadamia

nut farm was begun.

We got on the Volcano Road again and drove toward the volcano with lush vegetation on both sides of the highway until we came to a cut-off turning left into the dense forest of Panaewa. The road was very well kept, the drive was pleasant and refreshing after the unusually hot weather in Hilo, no rain to cool off. After a while we came to a clearing where large factory buildings were standing. We were taken to a smaller office-reception building, where a short introductory file of macadamia nut was presented while munching on fresh roasted macadamia nuts, before we started on our tour. Unfortunately the processing plant was under repainting, we did not get to see the inside nor any of the actual processing. To compensate for that Mr. Paul Okamoto took us on a tour of the orchard, to the center where a lookout mound gave us a vantage point from which the whole orchard was visible in all directions. The macadamia nut trees were nice and green, flourishing full of green nuts to be harvested in the near future, well protected by huge and tall Norfolk Pines as windbreaks.

After leaving the orchard and Panaewa forest we were driven into a sugar canefield of Puna Plantation. The dry weather made the dirt road very dusty until we came to a nice clean red cinder road, shaded by tall awa and ape-like plants with broad leaves, leading to one of the oldest orchid collections in the state, the oldest on the island of Hawaii, belonging to Mr. Herbert C. Shipman at his Keeau beach home. Paul had made previous arrangements so we were privileged to view the collection of orchids and rare plants and tramp the grounds, vegetation was luxuriant. The expansive lawn leading to the beautiful lagoon and beach was very nicely mowed. The back and front were two very very different, the tamed and untamed. After many mahalos we left and drove back to Hukilau where we washed and made ready for the big dinner.

John Yee and Larry Lau collaborated on the special menu of Chinese dishes and arranged for the dinner at Sun Sun Lau, the best Chinese restaurant in Hilo. Leisurely we enjoyed the dinner and drove back to the hotel to rest for we had to rise early for the morning flight to Maui.

The next morning early the check-out began and the transportation committee was right on time to take us to the General Lyman Field, after many mahalos we boarded the Viscount and left Hilo. The weather was ideal for flying.

On to Maui, except for one family, we practically had the whole plane to ourselves. The Viscount took one-half hour and there at the Nasca, Kahului airport were Francis Tanaka, Ernest Tanaka, Alice Enomoto and Ben Kodama waiting for us with the Lahaina Orchid Society reception committee headed by Mrs. Tanaka. Our entourage had more than a Royal escort - a sergeant of police and a plainclothesman - as they drove us to visit the growers. The first stop was at Ralph Yagis, Dream City, Kahului and what a setup he had! With conscientious and meticulous on detail Ralph had set up a ceiling of hardware cloth and saran with cement walks between sturdy benches already filled to capacity with plants doing exceptionally well. Many genera were in that tight area. A quarantine house was coming up in one corner of the lot. Flasks of seedlings were stacked up neatly on metal hanging shelves. Orderly neatness cannot be beat, a greenhouse setup any orchid grower would like to have for his own.

Wow! talk about specimen plants and CCM that Mr. Manuela Rodrigues had on his driveway up Wailuku Heights. There must have been at least fifty large

cement pots, maybe eighteen inches in diameter, of Dendrobiums, superbly grown and loaded with beautiful sprays of flowers, myriad of colors - white to purple and combinations of colors. Can he grow them! Manuela puts us old-timers to shame in culture of Dendrobiums. It was very difficult to leave such a grand scene but we must and thus we drove on to Lahaina. A sumptuous buffet lunch was waiting for us at the Maui Sheraton through the kindness of Lahaina Orchid Society. Mahalo.

After lunch the gang was scheduled to move in on Larry Aotaki, Lahaina. The driver of our car, plainclothesman Taguchi was very generous and knowledgeable about the land out Honolua way and the writer felt most fortunate to be given the spin to the end of the macadam-road. The mountain side of the road was pineapple fields yielding fruit for Maui Pineapple Company some thirty miles away in Kahului and on the sea side condominiums were mushrooming. A colony of Canadian retirees was making a foothold at the Napili section. At the end of the road Mr. Taguchi pointed out the tragic lovers tryst that happened not too long ago and the procedure the police used to identify the already deteriorated bodies.

As we drove back a new development in Lahaina at the entrance to Mala Wharf made by a philanthropic Japanese millionaire was visited. A large replica of "Daibutsu" in bronze and a large temple bell were established with some very modern cottages, very incongruous with the Buddha and bell, the income from the rentals to be used to maintain the place.

By the time we reached Aotaki in Mill Camp the early birds had picked all the plants they wanted and some nice red ripe Hayden mangoes also. So with a quick run through the courtyard and greenhouses filled to overflowing with orchids, we drove to see the new Lahaina shopping center. It was very nice to cool-off in the department store and get out of the very hot outside atmosphere.

Back to Royal Lahaina to get cleaned-up for dinner-meeting with the Lahaina Orchid Society membership. The dinner at Royal Lahaina was grand, the macadamia nut pie was good for three helpings. How lucky can one get? The famous Hawaiian Electric choral group presented Hawaiian songs and hulas while we enjoyed our dinner. The choral groups spotted and made dedications to George Char, computer division and Larry Lau, once of bookkeeping, both from Hawaiian Electric Co.

After enjoying the nice dinner and melodious music we reconvened at the Nakata patio to view color slides of the 1966 and 1967 HOS award winners projected by and commented by George Char. There were many Oh's and AH's when the colorful AM Ascocendas were flashed on the screen, also the Cattleyas, reds and yellows. It was far past midnight when the breakup finally came.

After an early breakfast it was back to Dream City and the Yamaoka's. Mr. Yamaoka passed away suddenly early this year so the gang paid respects. Here again Dendrobiums in large cement pots on a cement floor in the front yard was full of flowers from large canes nearly two inches in diameter, the whole well worthy of CCM from any group of Judges. All the yard space available was in use somehow for orchids mostly Dendrobiums. A Dendrobium flower show in itself was presented by Yamaoka's brother who took over the responsibility, almost a rank beginner following the best ideas in orchid culture.

It was on to Nirei's Shimamoto Orchid Nursery, Wailuku where many

Ascocendas were found and many with flower spikes were picked up. Nirei with a fully taped ankle hobbled around with a bottle of beer in his hand, gulping every so often to drown the maybe, was most helpful in describing the probable shape and color of the flowers expected on the spikes visible and other younger seedlings. The gang collected many plants, seedlings and near flowering sizes.

It was close to noon time so the gang was driven to the Iao Valley Hotel where a buffet lunch was enjoyed by all. We were the first to dig into the fully heaped dishes of goodies, even before the tourist started arriving, did we have our choices. A spin up to see the famous "Needle" of Iao followed which was very brief after all mountains did not interest us as much as orchids. We sped back to Dream City and Sorayama's collection was raided, again more compots of Ascocendas were picked up, some larger plants and a few Dendrobiums.

The gang stopped at Fukumuras, Sorayama's neighbor, to pay respects and condolences to Mr. and Mrs. Fukumura, whose father passed away a few days ago. We did not tarry here because of the situation, we did not get to see what Fuku had in his growing boxes surrounding his home.

At Larry Suzuki's we saw V. Nellie Morleys galore lining the front fence and his backyard was completely constructed as his greenhouse. His plants were arranged on very low benches maybe only six inches from the ground.

The next stop was Henry Furumizo and again it was the ascocenda that was the first target attacked by the gang. Here it was mostly compots that was collected by the interested and a complementary pot of a new cross of any ascocenda was presented by Henry followed by light refreshment.

We moved to Henry's neighbor to where each member brought out his collection to appraise and pack away to take home. It was a busy packing scene in the backyard of the most generous couple and the writer is most embarrassed to have forgotten their name. Go-men ku da sai.

We made the mistake of packing in too many small cartons when we should have used larger boxes after all the plants were light. All the boxes and baggage did not travel in the same plane and so we had to wait till the last plant to get all the packages and baggages at the Honolulu airport. Although we left Maui before sunset and it was still daylight when we alighted in Honolulu, it was nearly ten in the night that the safari parted at the airport each going his way home.

Orchid Show - July 1949

by Rev. Masao Yamada [26]

Some prominent growers of Honolulu attending the Hawaii Orchid Show on July 16 and 17, 1949, commented, "It's the best Vanda display I have yet seen. Hilo certainly is the Vanda country."

By attendance, number of exhibits, and general comment, this year's show could be acclaimed as the most appreciated to date. In the two days over 10,000 visitors crowded the Hilo Center Gymnasium to see every popular orchid species or hybrid on exhibit. Also by the amount of free-will donations deposited at the gate, the show was a complete success.

Exhibits were arranged by separate districts, each district given a certain number of square feet for displays. Since no prizes were offered, no credit could be given to any display as first or second honors.

The outstanding Vandas were blooms from the Hilo crosses, the V. Ohuohu and the V. Onomea. T. Ogawa's V. Ohuohu probably was on points perfect in conformation and texture. Unlike the previous blooms of the same seedling lot, this had a distinct reddish brown shade with dark brown dots spotting the whole flower. The conformation was very good -- round with petals evenly overlapped. The V. Onomea lacked conformation but its rich, deep rose color attracted the eyes of the public.

The Alexander Bowman exhibit of Dendrobiums was the largest of its kind to be shown in Hilo to date. The long graceful pink and purple sprays of Den. Hawaii and other hybrids added distinction to this year's displays.

Herbert C. Shipman's section was another attraction center. His cold climate orchids seen by many for the first time, created interest in Miltonias, Odontoglossums, and Cypripediums. Milt. Henrietta Armacost with large red star-like blooms on a long spray added the exotic beauty to the show. Odm. Yogi also made a deep impression. The stately Cyp. Roundhead FCC, greenish brown in color, glossy and quiet in appearance won many admirers.

The mainstay of the show, the large colorful Cattleyas were of real quality this year. The floor exhibit of Y. Hirose's was much admired. With the Cattleyas, there was a display of Sobraea Macrantha (one day bloomer, purple and Cattleya shaped) which bloomed for the first time in Hilo. The huge specimen plant from Pahoa, C. Sir Walter Scott with 92 large purple blooms, attracted visitors for its cultural technique as well as its beauty. The Lc. George Baldwin exhibited by several growers were of very good quality.

From the Halai district Y. Shigenaga brought out an interesting display. He succeeded in growing several seedlings of Lc. Aphrodite x C. Hardyana Alba on tree fern stump in the direct sun. The plants bloomed after growing for two years outdoors. The blooms were large alba flowers, seven inches across, four to a stem, with the look of vigor and vitality not seen in lath-house plants.

Dr. Francis Hoshino's prize Blc. Bracey was flown from Honolulu for our show. It was well received. Practically every visitor stopped to look at the rich orange-colored flower, causing a traffic jam at its table. T. Ogawa's Lc. Hecuva,

purple colored Cattleya, showed outstanding conformation.

Along with the orchids, a mannequin fashion show was on parade. Ten dress shops of Hilo cooperated to enhance the use of orchid blooms. Every dress, whether a muumuu, holoku, wedding gown, beach wear, travel suit, or street dress was matched by an appropriate orchid bouquet, corsage, or lei.

The florists' cut flower section was well attended. Flowers of Hawaii exhibited Vanda in shipping packages. Moiliili Flower Shop displayed fumigation and shipping processes to the mainland. Ebesu Flower Shop arranged the horse-shoe wreath of Vandas and several bouquets. Hilo Orchid Shop displayed both Vanda plants and corsages. Tanaka Nurseries, Jewel Box, Hirose Nurseries, and Kodani Florist exhibited original corsages and bouquets. Mrs. S. K. Oda exhibited Vanda leis made in the most intricate and exacting manner. Three variations of the Mauna Loa type leis were greatly admired.

Mrs. N. Oshima arranged a table of Japanese Flower arrangements. Her artistic and creative lines, using orchids as foundations were admired for originality and composition. She had Cattleyas, Dendrobiums, Vandas, Epidendrums arranged with appropriate color schemes to bring out the exquisite beauty of the orchids. Many flower arrangement enthusiasts were seen making diagrams of the arrangements.

The Society's education exhibit this year was on "cinder culture." It was most timely due to the shortage of osmundine. Seedlings from communities, 1-1/2 inch, three inch to flowering sizes, were displayed. Explanations described in full the use of cinders in growing Vandas, Cattleyas, Dendrobiums, and Cypripediums. Many visitors were amazed at the growth of the plants in plain cinders. "Seeing is believing," but many could not quite believe what they saw.

9th World Orchid Conference Tour

by Dr. T. David Woo

After two years of planning by Ben Kodama, the itinerary of the 9th World Orchid Conference Tour was finalized. On January 12, 1978 27 people assembled at the Honolulu International airport ready to see what the world of orchids had to offer them. Mrs. Dora Yamamoto and Mrs. Violet Yamaji were the tour leaders with Mr. Shige Warashina of Sus Tours and Travel Services, Inc.

Among the participants were Mrs. Edit Kosuma, Mr. and Mrs. Norman Miyata, Adam Baker, Mrs. Toyoko Ajifu, Wilbur Chang, Mrs. Gloria Schmidt, Mrs. Jeanette O'Sullivan, Mrs. Helen Fernandes, Mrs. Alexandra Williams, Alfred Johansen, and Mrs. Chiyo Kawashima from Oahu. From Maui were Mr. and Mrs. Kenichi Nakata, Mrs. Toyoko Nakata, Mr. and Mrs. Kenso Seno. Mr. and Mrs. Fusao Sakata came from Kauai. From Hilo were Hayato Tanaka, Sadao Sugihara, Masaya Miyao, Yoshiharu Tsubaki and Dr. T.D. Woo.

Auckland, New Zealand: After a good night flight via Air New Zealand, we arrived in Auckland quite weary from the cramped seating arrangements. That evening, we met with the New Zealand Orchid Society at Corban's Orchids located in Henderson. Membership consists of about a thousand people. One person traveled 90 miles to attend this meeting. Our group had a delicious buffet dinner with 30 New Zealand orchidists; the Hawaiian group showed slides of Hawaii's famous orchids.

Mr. A.K. Corban, besides being an orchid grower, is also mayor of Henderson and went out of his way to show us around for two days. We visited the Corban's nurser and saw primarily cymbidiums, cattleyas and some dendrobium nobiles. The orchid plants were grown on cement slabs.

Among the spectacular sights we saw was the Waitomo Glow-worm Grotto, one of the most extraordinary sights in the world. We sat in small canoes and enjoyed in darkness and solitude this unusual display of nature. The stalagmites and stalactites were majestic in form and shape.

We toured the city, often dubbed "san Francisco of the South", which is the 6th largest of the world, saw the Parnell Rose Gardens, Mt. Eden, and the Maori Village. On the wa, we had an added bonus when we ran into a herd of sheep, 1500 of them, on the roadside.

We also saw Auckland Bay, one of the best harbors of the world, which is protected against pollution by laws, passed the largest man-made forest of 1-1/2 million acres, and saw the kiwis at the Otorohanga Zoological Society Park. These unusual nocturnal birds pair for life and have a peculiar call heard only at sunset; the male being high-pitched and the females very low-pitched. Their eggs hatch after the males have sat on them for 70 days.

We were treated to a tea party at Mr. I.D. James' residence and viewed his orchid greenhouse. Mr. James is a hobbyist with a collection mainly of cattleyas, cymbidiums, and paphiopedilums. we also visited the collection of Mr. G. Liard. His collection was larger and consisted mainly of cooler-climate type of orchids.

The group then proceeded to the Greenstone Factory where New Zealand

jade or nephrite was cut and polished.

The final day was spent visiting the "bush" where we saw a 350 year old Kauri tree and the native palm, Nikan. The Auckland Centennial Memorial Park with their nature trails gave us an insight on how a forest goes through a cycle of emergence, adaptation, survival and death.

The New Zealand orchidists were wonderful hosts and the group was extended a royal welcome. A large group of New Zealand Orchid Society members is planning to attend the 39th Annual HOS Orchid Show in October of this year. The tour escort will be Cliff Brindle, secretary of the society.

Sydney, Australia: Our next stow was Sydney, where we experienced the hottest day of the season, 100 degrees Fahrenheit. After the usual tour of the souther beach area we headed for the Frank Slattery Orchid Nursery. Mr. Slattery is one of the largest exporters of Australian species in the Sydney area. There were some unusual species, cymbidiums, paphiopedilums, dendrobiums and cattleyas but only a few plants were in flower.

We took a morning coffee cruise of Sydney Harbor to view the many sights along the way, drove across the famous Sydney Harbour Bridge which used to be their landmark and ascended the steps to the Opera House with its unusual style of architecture and a seating capacity of 100,1000. It was built with 102 million dollars of proceeds from lotteries.

Other orchid establishments visited were Norman Loaders Nursery and Wonderbah Orchid Nursery. Norman Loaders Orchids located in Dural, N.S.W. is in a very beautiful rural surrounding. His nursery had mostly cymbidiums which he ships to Europe, Japan, and U.S. as cut flowers. There were also many greens and dried arrangements. At Wonderbah Orchid Nursery since Mr. Giles had already left for the World Orchid COnference in Thailand, his employee met the group and showed us around. This nursery is Australia's leading orchid hybridizer; the orchids are world famous for quality. There were dendrobiums, paphiopedilums, cattleyas, and many cymbidiums. Since this was not the flowering season for cymbidiums, few flowering plants were seen. Wonderbah also exports cymbidium cut flowers all over the world.

Singapore: We proceeded to the crossroads of Asia, Singapore, the 4th busiest port of the world and a duty free port. Many ships were anchored awaiting their turn to unload. This exceptionally clean city is also called the "Garden City" because of its famous Botanical Garden.

We visited the City Hall and Parliament House, ogled at the prices of the Jade House and wandered through Tiger Balm Gardens. The piece de resistance was a block of emerald green jadeite carved into the shape of bamboo, which is priceless. Others in the collection were Burma jades in many shapes and forms, nephrite figurines from China, rose-quartz carvings from Brazil, and black jasper cauldrons from Burma.

We sat through an "Instant Asia Cultural Show" at Paser Panjang where Chinese, Malay, Indian and Filipino dances were performed. Those whose appetite were whet, saw an evening performance at the Hilton Hotel of the Rice Harvest Dance, Candlelight Dance and "Bersanding" or Maylay wedding scene.

Orchid nurseries visited were the Koh Keng Hoe Orchid Nursery, Sun Kee

Flowershop and Nursery, and Singapore Botanical Garden. Mr. Koh Keng Hoe was not at home but was in Thailand. His collection consisted mainly of dendrobiums for cut flowers, vandas, and a few phalaenopsis. Sun Kee Nurseries had over 20 acres of cut flower plants consisting of arachnis, arandas, semi-terete vandas growing in pots off the ground in full sun. They ship cut flowers to all parts of the world. Mr. Sum Yee Thye was a student of Dr. Yoneo Sagawa at the University of Hawaii. The Singapore Botanical Garden had many orchid plants in flower and was an interesting place for plant lovers.

Fruits in season which we sampled were the sweet mandarins, oranges, rambutans and durians. This latter is an unusual fruit claiming to be the "king of fruits" which "smells like hell but tastes like heaven". It is forbidden in hotels and public conveyances because of the offensive odor.

Kuala Lumpur, Malaysia: There are 13 states in Malaysia, nine of which are ruled by Sultans. The reigning king is elected for 5 years, lives in a Moslem Palace and earns a salary of $10,000 a month.

We visited the We Soon Kiew Collection in Kuala Lumpur where the Selangor Orchid Society members greeted the group with many flowering plants and also invited the Hawaiian group to judge the flowers at their mini-orchid show between rain showers. Most of the better flowers had been sent to the World Orchid Conference Show in Thailand but there were many flowers of good quality at this gathering. Refreshments and drinks were served by members of the Selangor Orchid Society.

Penang, Malaysia: At Penang Airport, we had to go through a rigorous security check, for there had recently been a hi-jack. However, the officials were courteous. We stayed at the Rasa Sayang Hotel with it unique architecture. It was there that we learned the phrase "sama sama" which meas "same to you", a universal response.

We had a fascinating tour of Chinatown, rubbing shoulders with the crowd and experiencing the aroma of the various sidewalk stands. Imposing structures, with Moorish, Indian and Chinese styles of architecture were in evidence. We went to the Snake Temple and saw live vipers coiled up and made docile with the incense smoke. The Koo Family Temple was one with ornate decorations to the ninth degree.

The Botanical Gardens sported many monkeys scampering about and begging for peanuts and so the young boys were selling their quota of packages.

We visited the Ooi Leng Sun Nursery at Butterworth, Province of Wellesley. Michael Ooi, a young and enterprising orchid nursery man who had been a student of Dr. Sagawa at the University of Hawaii was our host in a grand manner. We took a ferry to his establishment from Penang and saw his clay potter kiln and factory, his brick works, and his orchid farm. Michael has grown some mericlones to supply plants for the cut flower market. He also has the finest and largest collection of well-established Phalaenopsis violacea as well as other Malayan species. His phalaenopsis plants are grown in two pieces of coconut husks tied together and placed in a teak wood basket which is hung about 4 feet from the ground. There were a few paphiopedilum species, vandas and other plants seen here, as well as many seedling. The group was invited to a Chinese mountain pot dinner with all its trimmings. There were several

buckets full of mangosteens and rambutans which were most delicious. It is said that Wilbur Chang ate the most fruits at the one sitting. Michael Ooi was a gracious host and at the end of the party, proposed a toast to Ben Kodama, even if Ben was not there, since he felt most deeply indebted to him during his stay in Hawaii. After the dinner the group sang "Aloha Oe" to Michael, his beautiful wife Lisa and all of Michael's family.

Bangkok, Thailand: The purpose of our trip was this Thai Capital. We arrived at the site of the 9th World Orchid Conference on the last day of the show, January 23, 1978. After spending much time checking in at the conference headquarters and getting our registration tags and kit, we immediately proceeded to the Rose Garden to see a spectacular outdoor orchid exhibition unparalleled in orchid history. People by the thousands were streaming through but in a most orderly fashion, following the rope pathways. It was estimated that over 200,000 people went to see the orchid show. The displays were arranged in "islands" with greenery to complement the flowers. It can truly be said that Thailand is the "vanda and ascocenda capital of the world". The vandas and ascocendas were unbelievable in quality. The colors of the flowers were magnificent and the shape of the flowers were nearly perfect. Truly, this one event made the trip worthwhile. The only problem was the distance of the Rose Garden from the conference headquarters and the slow moving traffic which made the trip to the show site over two hours. Thailand did justice to its reputation for beautiful orchids. We were sorry to have missed the opening ceremonies by the King and Queen of Thailand and other festivities.

We were most anxious to see what their nurseries had to offer. Among those visited were the Paulkris Orchid Farm where we saw thousands of Den. Madam Pompadour in bloom and saw how the flower sprays were carefully packed and shipped to European and Asiatic markets about three times a week. At Phairot's Orchids, we saw many flowering vandas and ascocendas although the ones of better quality were at the show. Mr. Phairot Lenavat is one of the foremost breeders of vandas and ascocendas in Thailand and has produced many quality vandas such as V. Obha and V. Lenavat. The Bangkrabue Nursery had mainly Thai and Asiatic orchid species. Rapee Sagarik's orchid collection had mostly species, ascocendas, and vandas. Professor Sagarik was the chairman of the organizing committee of the Ninth World Orchid Conference.

T. Orchids, owned by Thonglor and Prachuab Rakpaibulsombat, was the site of an elaborate orchid display. Thonglor arranged and displayed his magnificent flowering plants at this nursery which was viewed by the 2,000 orchid registrants from all over the world. The displays featured excellent vandas, ascocendas, dendrobiums, oncidiums, arandas, etc. The plant sale at his nursery was brisk as orchidists were purchasing plants by "the carload" at substantial prices. Assisting Thonglor was his younger brother Somsak who learned mericloning under Dr. Sagawa at the University of Hawaii. Thonglor and his beautiful wife invited all the members of the various orchid societies and groups in his nursery for a sumptuous Thai dinner, which featured some very excellent and exotic dishes. The group also saw packing of cut flowers at T. Orchids. Mr. Thonglor Rakpaibulsombat is the president of the Royal Horticultural Society of Thailand, one of the sponsors of the 9th World Orchid Conference. A visit to T. Orchids is a "must" for orchid visitors in Thailand. Among his many beautiful plants in his collection are V. Thananchai, V. Thonglor, and V. Amphai. Mr. Thonglor was an excellent host and will long be remembered by orchidists throughout the world.

The final banquet of the Congress was done up in a grand scale with about 2,000 registrants in attendance. Food was laid out on decorated canoes with barbecue stations throughout serving Thai cuisine. There were also tempting desserts and exotic fruits. On stage were Thai dances and a fashion show modeled by the prettiest ladies of the land. Toasts, speeches, and awards wound up the evening. Everyone went home greatly impressed. The 9th World Orchid Conference will be difficult to surpass.

Manila, Philippines: This surprising emerging metropolis of 3 million people commands respect because of its imposing governmental complex, broad avenues and its cleanliness. We went sightseeing to the Walled City of Intramuros, past the San Agustin Church and Manila Cathedral, and examined the interior of Fort Santiago where memorabilia of Dr. Rizal's life are on display. We also stopped at the Manila American Memorial Cemetery for the World War II soldiers. Rizal Park and the Beachfront Recreation Center were very popular areas.

We were impressed by the large modern shopping center at Makati, with its shoemart and 40 restaurants. The old Katanga horse carriages were still there, but the ornate jeepneys are taking over.

We visited Tescon's Orchid Center Nursery. This nursery is the largest supplier of Philippine orchid species. There were many orchid species newly acquired from Mindanao and a few from Bagio. Among the orchids seen were aerides, paphiopedilum, dendrobiums, phalaenopsis, renantheras, trichoglottis, and vandas. A short visit to Javier's collection was also made. Some of the group also visited Mrs. Marta M. de Revilla's garden, Mr. and Mrs. Felix de Leon Flores' Orchid Nursery and Mrs. P. Lopa's collection. We were also invited to a dinner meeting with the members of the Philippine Orchid Society at the residence of Mr. and Mrs. Macario Palanga who is known as the "spirit king". "Heart of palms" was a delicacy served.

Miss Maria Theresa Flores, who studied meristem culture with Dr. Sagawa at the University of Hawaii, escorted the Hawaiian group throughout their stay in Manila. Special thanks to Maria for being an excellent hostess. Mr. Felix de Leon Flores is experimenting with hormones for inducing keikis on nodes of phalaenopsis flowering stems.

The "shooting the rapids" tour to Pagsanjan Falls by dug-out canoes provided thrills for some of the group who went while others visited orchid collections such as John Mesina's. Mr. and Mrs. Jose de Delen Angeles invited the group to her residence for a very sumptuous banquet. There we met many prominent guests including the mayor and chief of police.

Hong Kong: By the time we arrived in Hong Kong, it was mid-winter and sweaters and jackets were in style. This British Crown Colony of only 29.2 square miles is home to 4.5 million people. Victoria Harbor anchors over 7000 ships a year and is the world's greatest cross-roads for travelers and trade and a free port at that.

This is still a shopper's paradise, although prices are higher. A night scene from the peak shows off the splendor of Hong Kong as a glittering jewel, as brilliant as the dazzling diamonds and jade on sale.

We rode the peak cable car, went across the bay via ferry and came back in the new undersea tunnel. We saw Tiger Balm Palace and more jade carvings. They drove us over to the New Territories of Kwsaw Tiger Balm Palace and more jade carvings. They drove us over to the New Territories of Kwanloon to within miles of the "Bamboo Curtain" of the People's Republic of China. We had dinner at the Floating Restaurant at Aberdeen.

A meeting had been arranged with the Hong Kong Orchid Society at the China Club on Hong Kong Island where a 12 course Chinese dinner was served. This gave our members a real introduction to genuine Cantonese cooking. Dr. Sandy Lee, their president was unfortunately incapacitated in a local hospital, but we sent a delegation to wish him a speedy recovery.

Kaohshiung, Taiwan: On arrival at this city, we were greeted with the most complete security inspection ever. The tour took us to Chen Ching (Crystal Clear Lake) where the spring and autumn pavilions were, viewed the garden of serenity and the 9 turn bridge. The late General Chiang Kai Shek had his villa in the middle of the lake, the roadway to which was planted with rows of royal palms. We saw the 7-story pagoda, the bell tower with 3 pavilions signifying good luck, prosperity and longevity. Modern fish farming ponds were seen on the way.

At Kaoshiung, we visited the orchid collection of Mr. Lee Chen Sheng, collection of Mr. S.P. Chow which consisted of mostly cattleyas and the nursery of Mr. Chang Yao-Hai of mostly cattleyas. Mr. Chang Yao-Hai is the chairman of the Taiwan Orchid Society and chief prosecutor of the Kaoshiun District Court. Mr. Lee Chen Sheng was a really energetic and enthusiastic orchidist and very graciously invited us to his summer home to see his orchids. He had many greenhouses with thousands of seedlings of dendrobiums, cattleyas and phalaenopsis. His seedlings were well-grown and consisted mostly of plants which he had hybridized. Later we were invited to a superb Chinese dinner at the Far East Restaurant where terrapin and snake meat were served - a first for most of us. A visit to a garden and orchid show was made where Lc. Mem. Dr. Peng 'Deep' was the star attraction. Mr. Lee was the philanthropist who donated the Chen Ching Institute of Technology to the city.

Taipei, Taiwan: We checked in at the Grand Hotel and from the appearance and atmosphere everything was in a grand scale, indeed. This was in direct contrast to our last accommodation in Kaoshiung. Security checks at the airport were just as severe.

For sightseeing we saw the National Palace Museum after proceeding through the tunnel to get there. We were impressed by the early writing on bone and the ancient jades which had been excavated. There are one quarter million items in the museum and if the display of 500 pieces were changed monthly, one would have to spend 40 years to view it all.

We also saw the National Martyrs' Shrine, the Presidential Square and the Lungshan Temple. We were taken to the China Handicraft Center, where Taiwan jade jewelry was sold as well. The porcelain factory was very interesting and after seeing the pains-taking process of decorating, glazing and firing, we began to appreciate the beautiful vases and statuettes all the more.

That evening we had a typical Mongolian barbecue dinner, including all the trimmings.

Naha, Okinawa: Our visit to Naha City was coordinated by Robert Kamiyama, a transplanted Hawaii boy, now with the U.S. Marines as a civilian employee. There was a dinner with the Okinawa Orchid Society, featuring an Okinawan menu and dances and much arm bending to down the sake.

The Tamashiro Orchid Center was excellent and efficient with good cultural technique and even a mericlone laboratory. Seedlings were sown from the flask on the flats and then to community pots. Mr. Tamashiro is president of the Okinawa Orchid Society.

On the city tour we saw Futenma Shrine, Bussan Kan, International Cemetery, Ryukyu University and Museum, and the Sanyo Jewelry Center. The town is gearing to return to left hand traffic again.

Osaka, Japan: We landed at Osaka on the last leg of our journey. This is the second largest city in Japan and was the site of the Expo '70. It is a commercial city with underground shopping centers besides the Shinsaibashi shopping area. The imposing Osaka Castle was its landmark, having been built in the 16th century.

Mr. Fumimasa Sugiyama met us at the hotel and was very kind to take us in tow. He is the biggest breeder of paphiopedilums in Japan, as well as an orchid broker.

Among the orchid establishments we visited in Osaka were Orchids Tomiyama, where we saw many orchid species; Suikaen Orchids, owned by Shigeo Sakaue, which had mainly cattleyas and miniature cymbidiums; Mankaen Nursery, owned by Isao Sakaue, which had cattleya, paphiopedilum and cymbidiums and Yamato Noen Orchid Nursery, owned by Fumimasa Sugiyama, where lots of cattleyas, paphiopedilums, and cymbidiums were grown. The members picked up many species and hybrids which caught their eye.

We had a very delicious luncheon through the courtesy of Mr. Sugiyama at a special meeting hall. This was one of the best meals the group ate during the tour.

During the evening, we had a dinner get-together with members of the Japan Orchid Society at the Osaka Royal Hotel. and exchanged slide programs. Someone told Mr. Sugiyama that "BS" means "Big Shot" in America, so Mr. Sugiyama got up before the group and proposed a toast to Mr. Ben Kodama as being the "Biggest BS in Hawaii". Mr. Hiroyuki Yamamoto was one of the members representing the Japan Orchid Society.

We drove to Nara via the Hanna Expressway distinguished by its sound barriers erected along the way, for traffic switched by day and night at 100 km per hour. We say the "Great Image of Buddha" at Todaiji Shrine where the sacred deer roam. The weather got quite cold now, which was quite a change from what we had experienced so far.

Kyoto, Japan: Our next stop was Kyoto, the old Imperial capital of Japan of a thousand years, being founded in 794 A.D. It is a beautiful city with 1500 temples and 200 shrines. We saw the huge Higashi Hongwanji Temple, the headquarters for the sect in Hawaii. We went through the corridor of Nijo Castle which had "singing floors" for it emitted squeaking sounds like chirping

canaries to warn them of approaching spies or assassins. These were the days of the shoguns and samurais. Ladies were given 18 ranks and anyone who found favor with the Lord Ruler and bore him a son, could aspire to be the mother of the heir to the throne. The Golden Pavilion, with its symmetry and appropriate setting attracted admiration.

Nagoya, Japan: We boarded the bullet train for Nagoya, a very comfortable ride of speeds up to 120 km per hour. This is a manufacturing town which included the Toyota Auto and Textile Works, Noritake Ceramics and Dishes, Pharmaceuticals, Pachinko parlors, race tracks and two underground shopping centers. The Nagoya Castle, much like the Osaka Castle in style, was a focal point in this area.

We especially came to see the orchid auction at the Nippon Yoran K.K. Orchid Center. Mr. Issaku Nagata, owner of the Auction Center arranged to have an auction for our group to see. There were racks and trays full of miniature cymbidiums and other ornamentals of different genera. The auctioneer gave his spiel and the whole session was noisy and exciting. However, all plants went under the block in no time. Such auctions for orchids are held twice a week and they gross sales of $250,000 each time. Blooming potted orchid plants in Japan are big business.

We had a dinner meeting with members of the Nagoya Yoran Kai at the Nagoya Castle Hotel. This was an elaborate stand-up cocktail affair, with many fancy hors d'ouevre. They presented each of us with leis of cymbidium and dendrobium flowers and the atmosphere was very friendly. At the beginning of the dinner, the tables were loaded with delicious food but after the dinner, there was not a speck of food left. A program of slides from both groups was presented and well received. This is one dinner the group will not forget!

Tokyo, Japan: Our final destination was Tokyo, the capital of Japan and the world's largest city with 12 million population. We boarded the bullet train from Nagoya and because of snow on the tracks we had to slow down over the country side and up the mountain ranges. We were treated to a scene of winter splendor. Many of us had never seen such a sight before. Everyone was bundled up and girdled for the freezing weather. Gloria took the prize for the best fur bonnet which could have been modeled after the Mongolian Empress head dress we had seen at the National Museum in Taiwan.

The season for cherry blossoms was soon to come as shown by buds peeping out on the trees. Leafy peony flowers were much in evidence. The Japanese Diet was in session which lasts 150 days with elections once every 3 years.

We made the round of the important nurseries in the Kanagwa area. Kokusai Engei (owned by Mr. Haruyuki Gauda) had many species, cattleyas, and cymbidiums.

The Sagami Orchid Nursery, owned by Mr. Obha had many flowering plants including miniature cymbidiums; and at the Chugai Orchid Nursery there were many cattleyas and paphiopedilums.

A beautiful orchid show was held at the Mitsukoshi Shopping Center where we admired and took pictures of the many awarded blooms.

We had a dinner meeting with the Japan Amateur Orchid Association of Tokyo. All Japan Orchid Society, and Japan Orchid Growers Association. Corsages of nobile dendrobiums were presented to the ladies. There were 16 JOS judges present that evening and our own AOS judges were also recognized. The usual slide program was presented of flowers from Japan and Hawaii. The evening ended with singing from both sides and it was a memorable experience and fitting conclusion to our orchid odyssey.

Many of us went shopping for last minute gifts. Tokyo aji tea and Tokyo mochi were favorite items. We rode the underground trains to the underground shopping centers which were immense complexes.

I noticed along the way a floral clock made up of leafy peony cabbage "flowers". How many did spot the weird windshield wipers on the car headlights, I wonder? Our guide announced that the first day of spring had arrived, but we were skeptical.

The "Aloha Dinner" was held at the Suehiro Sukiyaki Restaurant. We ate our fill of beef sukiyaki, washed down with 7 UP, sake, and beer. Adam Baker's singing could not even drown out the neighboring competition.

In conclusion, despite the minor maladies that accompany all tours to foreign lands, the concensus was that this orchid safari to the 9th World Orchid Conference was immeasurably successful. We saw indigenous species at every locality we visited. We collected plants, adjusted to early morning wake-up calls, figured out the complicated money exchanges, resigned ourselves to the passport and visa routines and were tolerant of each other's welfare. We would like to acknowledge thanks and appreciation to Ben Kodama for arranging visitations to orchid nurseries and making arrangements for dinner meetings with various orchid societies throughout the tour. We were invited to mansions of orchid lovers, which otherwise we would never have seen. We met all types or orchid enthusiasts, commercial as well as hobbyists, dignitaries, and the man in the street, the wealthy, the average wage-earner, all brought together on a common ground of interest. What an unusual breed we are - the subject of orchids is an open invitation to friendly discourse. Such exchange in cultural methods should assist us in growing better orchids. All in all, the trip, though trying at times, was well worth the effort. We even broadened our vocabulary in saying "Sama Sama" and that barber shop and bubble baths had other connotations. Towards the end, we had each member labeled and identified. Some even detected a hint of romance - why not for we were winging home on a "Honeymoon Special" back to Hawaii.

PART V. HYBRIDIZATION AND CULTURE

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Cypripedium Culture in Hilo

by Rev. Masao Yamada [27]

Cypripediums have been grown in Hilo for the past 15 years but never in any extensive fashion. Most of the growers that owned these Cypripediums never really took the trouble to perfect their culture. In the last two or three years, however, orchid lovers have begun to take Cypripediums in earnest and have made great improvements in growing them.

Seedlings imported in the spring of 1947 from Sherman Adams with leaves measuring only three inches long have been flowered last Christmas (1948) by several of our orchid growers. Mature plants imported from England have flowered the following winter. Today it is not uncommon to notice one or two hundred Cypripediums in a backyard orchid collection. Cypripediums have found a definite place in the Big Island orchid houses.

The mild, damp climate of Hilo and vicinity is well adapted for the modern Cypripedium hybrids. Many so called "medium house" Cypripediums will bloom without much difficulties. Even the "cool" Cyp. insigne has shown its adaptability and has bloomed. However, there are some that have failed to bloom.

For Cypripediums, the flowering season is over by March. Exceptions are the Cyp. Maudiae and Cyp. Harrisianum Ball's variety, which blooms without a set season. Most Cypripediums therefore should be repotted by March. If flowers were cut before their natural blooming span of about 60 days, it would be a safe rule to repot 60 days after the flower first opened. Every second year, the plant must be repotted with fresh osmundine, as osmundine deteriorates in that period.

Size of pot is an important factor in Cypripedium culture. If one is not very anxious to see the blooms, but prefers to increase the plants, then a large pot is advantageous. If one prefers the blooms for the set season, experience indicates that a smaller pot is surer to bring forth the bloom.

In 1947, ten plants of the same variety were imported from Los Angeles, repotted in 5 inch and 4 inch pots. Those in 4 inch pots, seemingly smaller and less vigorous bloomed in greater numbers than those in the 5 inch pots. Of the 200 Cyp. Maudiaes imported, those in three inch pots made a better showing in blooms than those in three and a half inch pots.

Division is made between the growth of the old and new flowered sections. It is safer to split the plant gently by hand, but a knife must be used when it is too compact and firm for separation by hand. The back cuts should be saved and repotted as they often produce two growths.

Roots must be cleared of all old compost and any decayed roots must be cut off. Fill half the pot with charcoal. If old roots are too long and cumbersome, place plants in pot first and then fill in with charcoal pieces up to the half way mark. Use damp osmundine (either black or brown) to finish repotting. Osmundine should be placed firmly around the plant, but not as tightly as for Cattleyas. The use of fingers is sufficient to repot a Cypripedium firmly. The Cypripedium should be planted deep enough to cover all roots and

the base of the first leaf.

For a week or two, the repotted plant should be placed in a shady, moist location. For a week or two, spray leaves with water daily, but caution must be taken not to over-water compost. Compost should be kept moist at all times, but not soggy.

After a week or two leaves usually will show signs of life by their erectness and glossiness. The plant should then be given a full supply of water daily and placed in more light.

Since each orchid house has its own peculiarities, it is best to try out the various locations for Cypripediums until the ideal spot is found. The best location is a damp spot where air circulates freely and where there is enough light to stimulate the growth of robust, hard, fleshy leaves. Plants in too shady locations produce softer and longer leaves. On the other hand, too much light scorches the fleshy leaves.

After the repotted plant begins its new growth, it is ready for its regular monthly feeding. A mild fertilizer, such as Gaviota Anthurium, can be safely applied once a month. Hyponex diluted in water and given alternately with Gaviota Anthurium will further assist the growth. The end of August should be the deadline for fertilizing, if one anticipates a good bloom in December. Due to our favorable climate, fertilizers may over-stimulate growth of plants and fail to produce buds.

Diseases in Cypripediums are not difficult to control. Daily watering seems to keep thrips away. However, thrips and red spiders attack plants during summer months, and black spots (fungus) appear from time to time. DDT and oil emulsion can control thrips and red spiders. Any commercial fungicide will control the black spots.

Later, when the buds appear, plants should be watered so as not to deposit water in the bud sheath. Insecticides of any type should never leave accessove residue in the sheath. Both water and insecticides could cause the precious bud to rot and die prematurely.

Orchid Growing on Maui

by Alex Anderson [28]

Maui No Ka Oi (meaning Maui is superior) is a slogan which is well earned by the Community of Maui in more ways than one.

After residing on Hawaii for 35 years and during which time it was almost necessary to develop web feet in order to get around in 160 inches of rainfall per year, it was the writer's good fortune to be transferred to the island of Maui where the average yearly rainfall is in the neighborhood of 28 inches.

Upon my arrival on Maui with all my goods and gear, I was in due time most hospitably taken in hand by members of the Maui Orchid Society and was introduced to the different growers and shown orchid growing as practiced on Maui.

My impressions of orchid growing can only be favorable in such wonderful climate. What with so much sunlight and heat together with controlled watering, it could not be otherwise. Cattleyas, Dendrobiums, Oncidiums, Vandas, Phalaenopsis just seem to be in their best. Vandas of the V. Miss Joaquim type in the writer's opinion do not do so well on Maui perhaps due to the drier climate, hot sun, and strong winds which occur frequently. However, Vandas of almost any hybrid do exceedingly well and are very profuse bloomers. The writer has a V. Onomea which is sending its 4th spike of flowers in nine months and each spike has been larger than previous spikes.

As one observes the different methods in which Vandas are grown on Maui, one is inclined to wonder just which is the better method. They are to be found grown on tree fern stumps as practiced on Hawaii. They are found grown in 10-12 inch pots filled with medium about level with the top of the pot. They are found grown in 10-12 inch pots with only about 1/3 of the 10-12 inch pots containing potting medium. They are also found under lath and also in full sun, and after all is said and done, they all appear to be well grown and it would be hard to decide just which is the better method.

The writer favors the growing of Vandas out in full sun, in 10-12 inch pots with a section of tree fern about 30" high held tightly in the pot. This is especially necessary if plants are to be grown out of doors and where strong winds could break the canes. Vandas require something to hold on to and will revel in the sun if moved out in dull weather and hardened, otherwise sunburn of leaves will surely take place.

As to growing of genera such as the Cattleya and closely allied types, Dendrobiums, Oncidiums and Phalaenopsis, they all do splendidly in an open lath house giving 70% light and 30% shading. It is not necessary to have an orchid house roofed with glass except a small section to accommodate plants in flower to guard against dust and showers of rain which could spoil the blooms.

The writer has found very much to his surprise that due to the light and heat which prevail on Maui, most all orchids are faster growing and freer blooming than on Hawaii. The color of foliage of orchid plants is not the luscious green which is easily attained where sunshine is lacking and where the plants do not have a chance of drying out frequently. All in all orchid growing

on Maui, from the stand point of flower production, is very satisfactory.

Nor is the growing of orchids limited to the aforementioned genera. Maui is blessed with a climate which may be chosen by the individual. It is only necessary to travel from Wailuku (which is considered the center of the island) to the Kula district on the slopes of Haleakala, a distance of 15-20 miles over good roads and one will find a very different climate and atmosphere. Temperature will drop from approximately 80 degrees Fahrenheit at Wailuku to 50-60 degrees Fahrenheit in this area. It is very evident then that the cool-temperature growing type orchids would do very well in that region. Cymbidiums, Cypripediums, Odontoglossums, Odontiodas, and other cool-temperature growing types could be grown equally as well as on the Pacific Coast and with the advantage of the lack of fog which often causes trouble on the mainland. As proof to the possibilities of growing such cool temperature orchids, one need only visit this Kula area and observe the many different garden products which are grown in this area. Apples, plums, potatoes, vegetables of all kinds, and flowers grow well in this wonderful climate at high elevation. When all is said and seen, and an appraisal made concerning orchid growing on the island of Maui, the writer can give the Blue ribbon to Maui, and the slogan Maui No Ka Oi is fitting and well deserved.

Schomburgkia Hybrids - Their Future

by W. W. G. Moir [29]

The two genera, Myrmecophila and Schomburgkia, have been combined into one; they respond so differently in their growing habits and in breeding that one wonders how anyone could really consider them a single genus. Then when these two were combined with Laelia, the results were even more impossible!

Myrmecophila is hollow-bulbed; these bulbs make lovely homes for ants. On the other hand, Schomburgkia is solid-bulbed, and three to four times larger, both in bulb and leaf length, than the former genus. Also, the habits of these two genera are very different. Myrmecophila has flowers scattered along at least a third of the peduncle, and the flowers close up each afternoon as the sun goes down. Schomburgkia has flowers in a crowded ball near the end of the peduncle; the petioles are much longer; and there is no closing of the flowers at sundown. A hybrid between these two genera is dominated by Myrmecophila characters in respect to bulb, leaves, flowering and closing at sundown.

Primary crosses, of either group, made with Cattleyas are also very different in appearance; Cattleya shortens the peduncle to a greater degree when crossed with Myrmecophila than with Schomburgkia. Back-crossing with Cattleya again results in a stem about the same length as most bifoliates. Any additional back-crossing does not seem to change this but shortens the plants a little when short Cattleyas are used.

Crosses with Brassavola would appear to be useless since the B. digbyana or B. glauca crosses are far too few-flowered while other Brassavola add very little to the shape of the curled flowers of these two genera.

Mixing these with bigenerics, such as Brassocattleya, Laeliocattleya, Sophrocattleya and Sophrolaelia produce not nearly as showy hybrids as those when cross is made with Cattleyas. However, Myrmecophila, crossed with Sophrolaeliocattleya (Herbertara) produce some very colorful masses of flowers.

Schombonia, Diaschomburgkia and Schomboepidendrum have interesting shapes which in large part are passed on to these second genera; however, these are very choosey when it comes to further breeding. One would think that Diacrium, also with a hollow bulb, would have a close affinity to Myrmecophila but it does not; it has a better alliance with Broughtonia.

Some really beautiful Schombocattleyas and Shombolaelias were obtained when making pure white forms, such as Smbc. Snow White, Smbl. Mexico and Smbl. Summit. The next step in crossing these to floriferous white bifoliate Cattleyas or Diacrium would undoubtedly bring about great hybrids. Even the bringing in of pastel-shaded or orangy-colored Laeliocattleya or bifoliate Cattleyas would be worthwhile. I made all these crosses but lost many in the early years of my hip operations.

Then taking the best array of color forms of Smbc. Harry Dunn (C. R. Prowe X Schom. lueddemannii) and going further with large Cattleyas some wonderfully great head of flowers resulted just above the plants such as Dusky Beauty (C. violacea), Colon (C. Pavalova), Smbc. Alewa (C. R. Prowe), Costa Rica (C. skinneri alba) and Ala Makani (C. Dupreana). Even those with bifoliates were

very floriferous and colorful like Belize (C. bowringiana), Nuuanu (C. guttata) and Smbc. Porto (C. bicolor). Even the crosses of Smbc. Harry Dunn with Laelia like Forecaster (L. autumnalis) and Ancon (Lc. Randy) were good.

I believe that Lyonara made with Laeliocattleya and Schomburgkia species had a great future if back crossed to floriferous bifoliates or mixture of unifoliate and bifoliate Cattleyas.

The size of most of these plants scares people but if you are landscaping a garden or a rockery they are great showy masses of color when in bloom. A few more generations of Cattleya or Laeliocattleya can bring them down to a comfortable size for the greenhouse. The curly tepals are eliminated in a couple of generations and numbers of flowers are a real asset. Using the shorter peduncled hybrids in the primary crosses leads to shortening these peduncles in subsequent hybrids.

I cannot pick up where I left off for I had given my favorite plants to friends to save them but fortunately one of these friends is starting again and carrying on in breeding and calls regularly to see what the next move should be.

Look for excellent clones of Schom. lyonsii alba, Schom. thomsoniana alba, Schom. lueddemannii as they are among the best to use.

There are many orchidists in the Tropics who should use these Schombo hybrids in their collections and in their gardens. If you do and wish to do breeding, take heed of my comments of staying with the Schomburgkia and not the Myrmecophila and use Cattleyas that are floriferous and colorful to bring about shorter peduncles and masses of colorful flowers.

Breeding Variegata

by W. W. G. Moir [30]

While I have waited for the printing of our second book on the Variegata I have rewritten, revised and added to the manuscript many times. I also wrote a separate booklet on the use of tables of percentages on each species in the register hybrids up to the end of June 1977 plus a lot of other detailed data on breeding these orchids. I finally removed about 50 typewritten pages from the manuscript and substituted the booklet in their place. The first of two review articles with colored plates will appear in the near future in Orchid Digest and when both are printed the book manuscript will go to press. But I cannot swear to this as most anything can happen. I am prompted to write the following on the basis that many people are breeding these oncidiums, that know nothing about their make up. There are many difficulties connected with their breeding and I do not want to see new breeders disappointed in their results.

These species do not make a close knit section in Oncidium like each of the other sections. The Variegata are divided into several subsections that are different in growth and chromosomes and are from very different environments in the Caribbean Islands and Florida. Other than Florida none exist naturally in any continental area in spite of all you may read to the contrary.

A few basic facts are needed to start with. Nine species have stoloniferous growth with many aerial roots. Aerial roots and stolons are hereditary in their breeding. The majority of them have 84 chromosomes and so far 84 chromosomes are found only in stoloniferous species. These are Onc. bahamense, Onc. hawkesianum, Onc. sasseri, Onc. scandens, Onc. sylvestre, Onc. urophyllum and Onc. velutinum. Two others, Onc. jimenezii and Onc. variegatum have 42 chromosomes. Two, Onc. jimenezii and Onc. urophyllum, are yellow flowered while the rest are lavender, pink and white with some purple variants. These are on five island areas.

In Jamaica there are eight species that are tall compact growers, no stolons, no aerial roots and plants are colored in grey, purple or red sheen on top of the green. These are Onc. apiculatum, Onc. berenyce, Onc. concavum, Onc. cuneilabium, Onc. gauntletii, Onc. pulchellum, Onc. tetrapetalum and Onc. triquetrum and all are 42 chromosomes and none are yellow.

Six species in three island groups have 40 chromosomes. They are not aneuploids. These are Onc. haitiense, Onc. guianense (Onc. desertorum), Onc. henekenii, Onc. lucayanum, Onc. moirianum and Onc. quadrilobum. This is the group that gives most the problems is breeding, partly from the chromosomes and partly from other peculiarities of male only or too many variants. However, these have produced natural hybrids with some of the first two groups in Hispaniola.

The rest of the species are mostly curiosities with little value in breeding and even have some stranger problems in breeding.

Every living thing is endowed with an inborn ability to create variants and it is how the environment handles these variants that results in what you see. The same thing happens in your hybrids as happens in nature to species. On top of all that you choose the time, the clone and the place to make a cross

while the plant chooses the time to flower that gives you the urge to make the cross. Many of these times, places and flowerings are just not the right ones to make the complete connection. But there is help to a certain degree from using the phases of the moon, the healthiness of the plants, and the skill of the breeder and the flasker. It does not much matter what you do you get only a small percentage of the crosses you make. The percentage of success over failures is much better if two things are remembered.

1) You avoid complicated chromosomes mixtures and
2) You stay with the five best species.

I will discuss the second point first as it is much simpler to discuss in spite of the fact I include three levels of chromosomes with the five best species. The five species are in order of importance with chromosomes in brackets, Onc. urophyllum (84), Onc. pulchellum (42), Onc. triquetrum (42), Onc. henekenii (40), Onc. guianense (Onc. desertorum) (40). Other species that have some value are Onc. tetrapetalum (42), Onc. haitiense (40), Onc. variegatum (42), Onc. velutinum (84), and Onc. concavum (42). Using the best five, it is a constant problem of keeping the percent of the make-up of the first two equal or above that of the last three. I have abbreviated the names into uro, pul, tri, hen, gui. In the tables to be found in the new book of which may be published separately if the book is not out soon, I have divided the hybrids in tables of 2 up to 7 species and shown what percent of each species is in each hybrid. In each table there are different combinations of species kept separately.

If one looks at any table, for instance, that of uro-pul-tri in Table III, one sees all the children of Onc. Golden Glow and Onc. Red Belt, which were the first time one got hybrids with larger flowers and floriferous, vigorous plants in Variegata breeding. When you get the book look at the lists and if you know the flowers you will begin to see what more of one species means in changes in flower shape, floriferousness and color. Cross any of these in a one suitable with each other and one gets good hybrids that begin to look alike but still are different. Contrast these with the primary crosses of the five best with but 2 species per hybrid and one sees what has happened.

Likewise take any other combination in other tables and see those with a larger percentage total on the tri-hen-gui side and find smaller more crowded flowers on shorter stems and with greater problems in breeding further because of the two 40 chromosome species. There are some precious compact little bouquets among them but they may not win awards. It is this problem I am mainly interested in getting across to you in this article. You can cross two beautiful fine large flowers and end up with a preponderance of tri-hen-gui with the result having short stem, crowded small flowered plants, flowers practically down in the leaves if you do not watch out. It is best that you figure this out before you make the crosses.

Remember I have a record of all the crosses since I started and know all about failures as well. I have known these plants since I collected them in the wild over 25 years ago. We collected good clones and eliminated many when better ones were found. In this process I learnt a lot about environments where some types did better than others. My second education took place in the mixing of chromosomes and then found that the 42 chromosomes species and hybrids did much better as females while the other acted better as males. But the first hybrids of 40 and 42 chromosomes species act as 42 chromosome individuals for one must have even numbers. These are never as consistent

breeders as those made with only 42 chromosome species. That was why, in using Onc. Delight (Onc. pulchellum x Onc. henekenii), Onc. Tiny Tim (Onc. triquetrum x Onc. guianense) and Onc. Red Velvet (Onc. triquetrum x Onc. henekenii) only about 25 to 30% of crossings made pods while with Onc. Catherine Wilson (Onc. pulchellum x Onc. triquetrum) and Onc. Agnes Ann (Onc. tetrapetalum x Onc. triquetrum) between 50 and 60% were successful. In no orchid breeding do you ever get 100% or even much better than 60%.

It was when the "triploids" were made of the 84 and 42 chromosome species that the bigger problems took place. Remember the 84 chromosome species have no 42 chromosome forms but do have 126 chromosome forms. Also sometimes in making primary crosses the 42 and 84 combine to make 126 chromosome hybrids right away and this complicates breeding with them.

The primary 63 chromosome hybrids of Onc. Golden Glow (Onc. urophyllum x Onc. triquetrum), Onc. Erma Warne (Onc. urophyllum x Onc. pulchellum), Onc. Anna Rosa (Onc. pulchellum x Onc. velutinum), and Onc. Michael Hart (Onc. urophyllum x Onc. tetrapetalum) were even poorer than the primary 42 x 40 crosses. Now if we had more research on chromosomes in hybrids we might be able to understand what happens later. When the 63 were crossed to 42 as in Onc. Red Belt (Onc. Golden Glow x Onc. triquetrum), Onc. Westmoreland (Onc. Erma Warne x Onc. triquetrum) and Onc. Calypso Queen (Onc. Golden Glow x Onc. pulchellum) we really got into problems with their hybrids breeding. Most of them like Onc. Stanley Smith (Onc. Red Belt x Onc. pulchellum), Onc. Savanna La Mar (Onc. Red Belt x Onc. Catherine Wilson), Onc. Bonanza (Onc. Red Velvet x Onc. Calypso Queen) and others the percentage of takes is low but those that do form are excellent crosses, but primadonnas in breeding further.

By the time children, grandchildren and great grandchildren of "triploids" have been mixed up with primary crosses of 42 x 40 chromosomes species one gets into percentages of takes that are down in the 20% bracket. These however are some very lovely things and do breed sometimes.

On top of these more of the species not of the best group, were added either directly or indirectly through mixed hybrids made early in the breeding program. The fines characters in most crosses today are those belonging to the five good species. Most hybrids today have a larger percentage of these in their make up. One definite conclusion from all this breeding or rather failure to breed, is do not give up trying. Part of the problem is that in all orchid breeding there are clones that breed well vs. those that do not, there are times in the day, year or season over many years that they will breed and that they will not. One can repeat the very same cross on the very same spray within minutes, hours or on other sprays on the same plant over a period of months or even year later and come up with success. One can reverse the cross and come up with a take right away or one can reverse a cross that has been made and come up with quite different looking flowers. The range of variants in any cross is very great - greater than with species. All living things have this ability to vary and the environment decides what lives.

The chromosome differences made it a lot more complicated in the Variegata and leaves a question in one's mind as to whether they are a section of Oncidium, several sections or a separate genus in the Oncidieae.

I do hope that the book we have compiled, that explains all the above in more detail, will come out soon for there are too many people breeding these

hybrids who do not know the parentages and they may come up with some horrible, very small or sterile offspring. I have given copies of a few chapters of the book to a few breeders with experience for them to see how the tables work.

What is listed in each table with the same species in them have a greater common bond and hybrids between them are more liable to be similar. They can still upset the balance of the five good species and not get what they expect. Going too high in total percentage towards the uro-pul ends up in very long peduncles, very unwieldy plants in small pots. Going too far to the tri-hen-gui side brings too compact, short stemmed, crowed small flowered peduncles that do not often give a second flowering on the same peduncle. But maybe these may appeal to some people.

By placing the percentage figures of any two named hybrids you want to cross one under the other and average out the figures you can readily see how the balance will be altered. Yes, in each cross, that may be wrong, there will be a very few individuals that are very impressive. Taking these very impressive ones and working back to a better balance one can get somewheres a lot faster than taking the average or a poor one. Just the other day I saw one of these impressive ones in a cross of small bouquets and knowing just what was in it I could not help but take up the balancing act to bring back floriferous, larger flowered, many flowered peduncles. Time will tell how well I did the job. The impression in my experience eye will be hard to record for others to understand what does come up but your own experience will teach you. This is a most fascinating game of gambling on the future. I have done this for 25 years and have not been disappointed with results very often.

The basic principles of all this breeding of balancing a few species (the best in a group) is the same in all genera of orchids. The work has gone much further in Variegata than in any other orchids because one gets flowering hybrids in 2-1/2 to 3 years and most of the preliminary work of collecting the species and breeding with them has been done. Someday someone will take the Odonts, Odontiodas and tabulate the past breeding as I have done with the Variegata. Since there are three good Odonts - Odm. crispum, Odm. harryanum, and Odm. pescatorei and one good Chochlioda which is Cda. noezliana the problem is simple.

There are peculiarities of many genera and species and when you these the problem becomes simpler. How simple it is with Vanda with but V. sanderana and V. coerulea and other genera can be broken up likewise. A real study of breeding along these lines of balancing off good species takes out so much uncertainty of where you are headed.

Little did I think that it would come to this 25 years ago. Also the disappointment of getting so low percentage of takes because of chromosomes stopped me several times until I tried to the same crosses over again and succeeded. Orchid breeding is not for faint hearted people, you must fight it out and find the reasons for failure. The results in Variegata breeding have taught me more about other breeding and hope to overcome some of the problems that I found in Variegata breeding, that is, in reversing crosses to get different looking flowers.

In Hawaii, if one goes by the awards by judges, flowers must have spots or large splashes of color to get an award in the Variegata. The spotting comes

from Onc. triquetrum, Onc. haitiense, Onc. lemonianym, or Onc. moirianum and these parents nearly all cut down flower size, have crowded flowers and short peduncles or very few flowers. They are not very valuable as parents for floriferous, large flowered, showy sprays in Variegata. Remember also spots are very elusive and do not think you will get only spotted flowers by using these as parents. One can have very plain flowers from them also and very small ones also. Likewise fiery reds are tricky and they lead to small flowers also. It is strange that most spots and splashed are red and red in orchids is connected with smallness. Do not cross yellow with red or you get yellows. Do not cross pinks or purples with yellows or you get whites and these whites are very dominant for white.

But do not let me stop you for experience is the finest teacher and failures are wonderful lessons too. Just remember that if you get bitten by the urge to breed then these are problems and get the book to tell you about them or call us up or come to see how to handle the problems. Have fun. If the book comes out before your read this then this is a good review.

Since writing the above I went visiting nurseries where large numbers of my recent crosses have been grown. I got more than a liberal education. I was simply amazed at the variation in colors, patterns and the branching of plants I had not seen before. It was the unusual ones I looked for, found and was startled at what was developing. There were new shades in color and designs and some tremendous vigor. There are new characters like 4 and 5 branches on the peduncle and their coming to flower earlier than waiting till the main peduncle finishes. There are deep purples from Onc. concavum and a little hint of concave flowers with it. There are broader shouldered bases to the lips all from four Jamaican species. There are full rounded flowers, larger than any before. There is the return of the gorgeous masks of Onc. pulchellum that has disappeared for many years. All these characteristics make me realize how important hybridization is to bring forth new or old characters that become strongly established as a character of heredity. The vast changes that have occurred in the Variegata breeding since its start almost says to me "There is no end of new developments" but I am old fashioned enough to say "Wait and see but try out new ideas to see if some gambles pay off". What long, long jumps from the species we started with 25-30 years ago. Try them. - 3311 Kahawalu Dr., Honolulu, Hawaii 96817.

Hawaiian Dendrobium Hybrids

by William Kirch [31]

Dendrobiums constitute one of the largest sections in the orchid family. They are extremely diverse in type. Many sub-sections would easily provide material for an article in themselves. Actually, we will do just that with this material.

Hawaiian Dendrobiums hybrids have been build mainly in one large sub-section of the genus "Dendrobium-Stachyobium." The most famous species of this sub-section is one well known to most orchid growers - Den. phalaenopsis. Actually, the capricious character of this species has been the stimulating interest in producing the modern Hawaiian Dendrobiums. We will attempt to develop this theme as we proceed.

Den. phalaenopsis, its varieties, near species like Den. bigibbum, natural hybrids like Den. superbiens or Den. goldiei, all have presented cultural difficulties to orchid growers the world over. Many years ago these Dendrobiums constituted a major cut flower crop. They were discarded through the years in favor of other types of spray orchids. It was not a lack of floral beauty that caused their ill favor, but rather an unwillingness on the part of the plants to cooperate with the grower. Today, Den. phalaenopsis and its near types seem to be staging a minor comeback. A better understanding of their requirements plus a generally improved understanding of their culture contribute to this.

Den. phalaenopsis in its normal form is represented in most collections today. Actually, this would be more correctly named as Den. phalaenopsis var. Schroederanum. Its origin is the Pacific Island of New Guinea. The type of this species is distributed in Northern Australia where it is known as the "Cookstown Orchid." The type is quite inferior to the variety Schroederanum.

Most of the Den. phalaenopsis grown today are the product of artificially grown seedlings. Selections for color and shape have led growers to continually select those types more nearly representing the variety Schroderianum than the type species. Nurserymen through the years have dropped the varietal name. This helps to explain the great disappointment many have experienced when importing the type species from Northern Australia, only to find it did not measure up to their expectations.

The species Den. phalaenopsis has some alba forms. These, in past history, have been very expensive plants. Three original named varieties stand out as parents of many of the better modern strains. They are namely, Den. phalaenopsis var. Phyllis Moore, Den. phalaenopsis var. Schroderianum alba, and Den. phalaenopsis var. Holeleucum. Crosses between these varieties have produced pure strains of alba forms. By producing them from seed, it has been possible to offer them a t moderate prices. Den. phalaenopsis var. Mauna Kea (White Mountain) is an example. This is the hybrid strain produced by crossing Den. phalaenopsis var. Phyllis Moore with Den. phalaenopsis var. Holeleucum. Some forms are pure white and others show a slight tinge of pink in the lip like the Phyllis Moore parent.

Another variation in the alba forms is Den. phalaenopsis alba, Lyon's type.

It is a product of continued self breeding of light forms of Den. phalaenopsis to produce albinism. This strain is the product of many years of breeding by one of Hawaii's outstanding amateur orchid growers, Dr. Harold L. Lyon, retired director of the Hawaiian Sugar Planters Association. It has proven a fine parent as generally it imparts great vigor to its offspring. No doubt this is due in large measure to the purity of the strain. Thus, we get a similar reaction to that achieved in hybrid cord. It has actually produced pure white forms in some of its hybrids. An example is Den. Caesar (Den. phalaenopsis alba, Lyon's type x Den. stratiotes). In this instance both parents show a considerable amount of color.

Den. phalaenopsis Miyamoto's type shows the result of crossing Den. phalaenopsis, similar to Lyon's type with the pure white form of Den. phalaenopsis Holeleucum. More and more it is coming to light that Den. phalaenopsis in the alba form is a valuable parent for color intensity. Such would not seem logical on the surface. One might expect a dilution of color using one white parent and one colored form. However, past experience has proven that the alba forms react much the same as does C. dowiana var. aurea in expressing increased color where the product is the combination of one colored parent crossed with it.

All of the types just presented would represent the major variations to be found in the Den. phalaenopsis section. Before leaving these it would be pertinent to discuss in brief the cultural requirements of these plants. Of prime consideration is the fact that they are seasonal. They have one period of growth usually beginning in early fall and maturing in early winter. From late winter to early fall again these plants remain dormant as far as growth is concerned. This is the major key to the success of their culture. When in growth they want to be watered, fed, and treated like any other orchid plant. However, when they are dormant, over-watering or overfeeding is disastrous. For this reason all cultural notes on this section say "grow them in small pots, keep them dry when dormant." If you live in a region that has dull winters and springs, you can see the difficulties you will experience in this respect, because they are dormant at that time. On the other hand, not recognizing their active period and giving them insufficient water and fertilizer during growth results in weak and poor growth with a following poor floral effort. A further problem in this group is bud drop. Usually this occurs when the grower is faced with high day temperatures with a quick drop in night temperature accompanied by high humidity. To overcome this you should ventilate your house to keep the temperature down during the day, start your heat early to let the night temperature drop gradually and watch for excessive humidity created by heavy damping and lack of ventilation. In summation, to grow Den. phalaenopsis watch the following points:

1. Pot in small containers to assure rapid drying.
2. Give ample light.
3. Keep on the dry side when dormant - late winter to early fall.
4. Give plenty of water and fertilize to assure large, strong growth when active, usually early fall to late winter.

Fortunately the hybridist has been able to overcome some of the problems that face the grower in handling species. Definitely this has been the case with Dendrobiums. Hybrids of Den. phalaenopsis are much easier for the amateur to handle. To date we have not obtained the perfection of flower form found in the species, but we have:

1. Extended the period of growth and flowering.
2. Greatly increased the number of flowers per spike.
3. Generally produced plants that are less susceptible to the pitfalls created in handling the species.

To show you some of these hybrids, we will start off with the first Dendrobium hybrid produced in Hawaii. Den. Hawaii (Den. phalaenopsis x Den. tokai).[1] Here we have a hybrid that, as far as the amateur is concerned is as easy to handle as any plant can be. It is fairly intermediate in shape as far as the two parents are concerned. The other parent, Den. tokai, is a native of the South Pacific Islands. Den. Hawaii is a vigorous grower, flowers many times a year, and under favorable conditions produces two or more growths per year. Thus, the problem of long dormancy found in growing Den. phalaenopsis has been eliminated.

Several years ago we selved Den. Hawaii and out of this selfing we developed several second generation seedling that are now being used as parents. One of these is Den. Hawaii Bronze var. This is a larger flower with interesting bronze coloring. This plant has proven itself a good parent. Den. Hawaii var. Green Gold is one of two of the pure green or yellow segregants developed. We are expecting to flower shortly several crosses from this and we will then be able to apprise more accurately its potential as a parent. Den. Hawaii var. Miwa's Yellow is a brighter yellow than Green Gold and again is being used extensively as a parent plant. One of our greatest hopes is that one of the other of those two parents may prove to be pure strained (homozygous) for their yellow color. If they are, they will be the forerunners of strains of large flowered yellow and chartreuse colored Dendrobium hybrids. Den. Hawaii Foster Garden's var. is not one of the self-crossed seedlings but is a very fine type of original cross. Shape here is much better than normal. Unfortunately, it is a difficult plant to set seed with. A few seedlings have been produced from it. Perhaps these will make better parents than it does.

We cannot leave the Hawaii variations without mentioning Den. Hawaii var. Luminosa Aurea. This is again a member of the self batch. Here we have the green color and a red lip. It might be interesting to note that to produce these four varieties, Gold, Den. Hawaii Miwa's Yellow, and Den. Hawaii Luminosa aurea, it was necessary to grow 100 seedlings to maturity. The other 96 were all discarded as inferior types to the original strain. In this instance selfing proved an expensive task. Without it, however, we could never have gained the fine yellow forms. Truly there is more to building a fine stud collection than meets the eye. Experience is proving that the crossing of one pretty plant with another is not enough. Orchids are a long term investment and the customer wants to be assured that he has a good chance of coming out on top when he buys unflowered seedlings. The breeder must recognize this challenge and wherever possible use parents of known breeding behavior.

Another fine hybrid of great cultural ease and freedom of flowering is Den. Pauline. This is, of course, nothing more than the natural hybrid Den. superbiens. It is a cross of Den. undulatum x Den. phalaenopsis. There has been quite a bit of confusion in the early nomenclature of Dendrobiums and this is a typical example. Another is Den. Liliha. This is the result of back crossing Den. Pauline to Den. phalaenopsis. It is sometimes called in England, Den. Yule. Also if one were to use the natural hybrid Den. superbiens and back cross this to Den. phalaenopsis, the result is known by name as Den. Louis Bleriot. Thus,

Den. Liliha, Den. Yule, and Den. Louis Bleriot, are one and the same thing except that they represent different strains bred in different countries and their parents were either natural hybrids or artificially produced under different names.

It has long been a matter of personal interest to see the variations in the strains of Den. Louis Bleriot, Den. Yule, and Den. Liliha. To date, the best exhibition types have been produced in Europe. Growers have been reticent to reveal parentages used. We have imported plant after plant of fine forms of Den. phalaenopsis from Europe, but the result of seedlings bred from these differ little with that of crosses bred from our own strains. The European types of Den. Louis Bleriot are for the most part triploids and are highly sterile in breeding. Because they are triploids its suggests that one of the original parents must have been a tetraploid. Recently, we learned that European breeders have used a superbly fine type of Den. superbiens, known as var. superba. We have at last obtained a plant of this and perhaps by working this into some of our better growing strains we will be able to produce the same exhibition quality but with a much more vigorous and easy to grow hybrid. However, all of these hybrids are easier to grow than Den. phalaenopsis. Another fine subject in lavender Dendrobes of the phalaenopsis type is Den. Sander's Crimson (Den. taurinum x Den. phalaenopsis). This also has a frequently used synonym in Den. Bali. Color varies in this hybrid from very dark forms to medium lavenders. The Den. taurinum parent has increased the size of the lip and imparted great vigor and freedom of flowering. By using some of the alba forms of Den. phalaenopsis that appear to have color gene intensity it should be possible to produce some extremely dark forms. This hybrid is definitely a good amateur subject.

Den. Louisae (Den. schroederanum x Den. veratrifolium) represents the tremendous freedom of flowering, the great spike length, and the general vigor of hybrids produced with the species Den. veratrifolium. This species is without doubt one of the best in existence to produce almost perpetual flowering types. The plants grow like weeds and while in the early primary crosses the individual flowers do not have the wide petals and round shape of the phalaenopsis type, they are still beautiful. Let no one say that these small flowered Dendrobiums have no value as cut flowers. Arranged in vases for cut flowers, they are superb. They can also be made up into some of the most charming corsages. Any floral artist should be more than willing to jump to the challenge. They offer far more than a big Cattleya in charm, and can be chosen to fit the personality of "my lady fair."

The continued use of the aforementioned hybrids, Den. Hawaii, Den. Pauline, Den. Liliha, Den. Louisae, intercrossed, backcrossed, selfed, and line bred for types nearing the larger flowered types of Den. phalaenopsis will result in the not too distant future in types of Dendrobium hybrids that should approach the species but that will have lack of season, no dormancy, and an easy of growth that will eventually put the species out of the running. This we would say is prediction No. 1 on things to come.

So much for the hybrids built around Den. phalaenopsis.

Let us rather now take up one at a time those species that have helped to make Hawaii famous for its Dendrobium hybrids. It would be these plants crossed back and forth and with other hybrids that have produced what are today known as the Hawaiian novelties. We in one sense object to the use of the

word "novelties" although we realize that it has been meant as a compliment. In recent correspondence with the Secretary of the German Orchid Society, he made the statement that German growers find it hard to believe that such a wide range of fascinating types and colors could ever have produced in this genus. It was, of course, these same German growers who in the early days of pre-World War I grew Den. phalaenopsis to the height of its cultural perfection. The word "novelty" is all right if it does not infer that these hybrids have no useful purpose other than being different. They are, of course, capable of a lasting permanence that would hardly befit the use of the term "novelty" that is frequently applied to other plants of short favor.

Among the most important of the species used in such breeding is Den. stratiotes. This species occurs naturally in the western part of the New Guinea section of the Pacific. It was first introduced to horticulture in 1885. The literal translation of the name means "soldier' and refers to the erect habit of the bulb growth. It is also one of a widely known section called the antelope orchids because of its petals which give the appearance of antelope horns.

In spite of the fact that this species was introduced in 1885 to commerce it was not until approximately 1940, 55 years later that the first hybrid from it was recorded. All of these early hybrids produced about 1940 were made in the Dutch East Indies. Most of these plants were destroyed and lost to cultivation during World War II.

It was not until Dr. Walter Carter, brought a plant of Den. stratiotes back to Hawaii in the late 1930's from the Dutch East Indies and then distributed parts or divisions of this plant to other Island growers in the early 1940's that it began to be used as a parent in Hawaii. Since that time it has figured prominently in the hybridizing of the Hawaiian breeders. It characterizes its hybrids with a complete dominance of shape, a somewhat shortening of stem length, production of upright stems, extreme texture of the flowers, and a lasting quality that is unsurpassed. The species itself and many of its hybrids will last in perfection on the plant for three months or longer.

One of the best known of the Den. stratiotes hybrids is Den. Salak. This is the cross of Den. stratiotes and Den. undulatum. Most of the hybrids take on the golden brown color of the undulatum parent and the shape of the Den. stratiotes. This hybrid makes up into beautiful corsages.

Den. Pauoa (Sander's Den. Crimson x Den. stratiotes) is another hybrid. Many of these have great size. Colors vary, but all are various shades and markings of lavender. Texture is excellent and the flowers last for a long time.

Den. Caesar (Den. stratiotes x Den. phalaenopsis) shows considerable variation in color depending on the strain of Den. phalaenopsis used. The flowers are large and they last in perfection for weeks. This hybrid is excellent for cut flower purposes. Den. Caesar occurs with a white background with a lavender flush. The hybrid can be pure white. This is the most sought after type by amateur collectors in the Hawaiian Islands and as a result the price for proven plants of this type is quite expensive. To date we have not been able to produce pure white true to seed in quantity. You may be assured our breeders are working on this problem to reduce the cost of this type.

Den. Stratokai, a hybrid between Den. stratiotes and Den. tokai is one of the most beautiful in this section. It has the shape of Den. stratiotes but much

of the deep chartreuse color of Den. tokai. Again, it is characterized by fine texture, long lasting quality, and freedom of growth.

Den. Mildred Kazumaru is the result of crossing Den. Hawaii and Den. stratiotes. There are some very fine subjects in this hybrid and a great range of colors. Yellows, bronze, lavenders, peach tones, salmon shades have all appeared. This is due to the heterogygous (mixed) genes of the Hawaii parent. We showed you earlier in this program some of the variations that appeared when Den. Hawaii was selfed.

Den. Sunda Island was produced by crossing Den. stratiotes with Den. veratrifolium. This hybrid is principally white with a pale blue cast. It contains all the fine characters of the other Den. stratiotes hybrids.

By crossing Den. stratiotes with Den. gouldii we produce the hybrid Den. Lum Goo. Here the principal colors are deep golden yellow and brown.

Den. veratrifolium has been used with Den. phalaenopsis to produce Den. Louisae. This species has been used with other Dendrobiums and really constitutes a group of its own. It is native to New Guinea and extends on westward into the Dutch East Indies. It is a highly prized garden plant in that part of the tropical world and often grows pseudo bulbs ten to twelve feet high with hundreds of spikes of flowers. While no one in Hawaii has ever matched such culture as this, it is still a tremendously vigorous species. Crossed with other Dendrobiums it never fails to impart tremendous vigor to the hybrid. Its greatest drawback is the reduction of size of the individual flowers. However, when one considers the great beauty of the long arching spikes, the delicate shades and colors of the flowers, plus the fact that the hybrids are almost indestructible with regard to culture, you have a section that warrants the close inspection of the amateur grower. As plants for display purposes, this section is unrivaled. In time we will undoubtedly produce hybrids of this type with all sizes, shapes, and colors of flowers.

Den. Lester McCoy is one of the best of this group. It is a cross between Den. Hawaii and Den. veratrifolium. Here again as in Den. Mildred Kazumaru, the range of colors is tremendous - yellows, bronze, lavenders, greens, peach, apricot, white, the whole gamut. We did cross Den. Hawaii Green Gold with Den. veratrifolium and this selfed yellow Den. Hawaii has produced as a parent almost 100 percent yellow forms of Den. Lester McCoy. So you see, a breeder's work is never done, and the fields to be yet explored are much greater than anything even thought of to date. Some day we will know our parents well enough to be able to make a cross and predict the result without any error.

Den. Joanne Sayers is a good companion plant to Den. Lester McCoy. Actually, the parentage is quite similar. It is the cross of Den. tokai x Den. veratrifolium. Den. tokai is the father of Den. Hawaii which in turn is the papa of Den. Lester McCoy. So the only difference in the two is the insertion of one generation of Den. phalaenopsis blood in Den. Lester McCoy. Den. Joanne Sayers has no great range of colors but limits itself to white, cream, green, or yellow. Therefore, it would seem that the insertion of one generation of Den. phalaenopsis blood was responsible for the off-colors produced in Den. Lester McCoy, but absent in Den. Joanne Sayers.

One of the most free and best flowering hybrids in this section is Den. Ursula. This has as parents, Den. veratrifolium and Den. undulatum. Colors are

mostly shades of brown and yellow but the under tones of blue give them a very unusual color cast. Den. Ursula crossed with other potential blue parents such as Den. gouldii, Den. veratrifolium, Den. 442nd Infantry, will no doubt in time increase the number of blue Dendrobium hybrids. A good example of the "blues" is Den. Blue Boy. The parentage here is Den. veratrifolium x Den. Louis Bleriot. Another good blue is Den. superbiens x Den. veratrifolium. Both of these "blues" contain parents that have Den. veratrifolium on one side and a hybrid containing yellow on the other. Den. Louis Bleriot has Den. superbiens in its background and Den. superbiens has Den. unduiatum behind it. So, when you use a lavender-yellow combined hybrid and cross this with Den. veratrifolium, the emergence of some blue types is almost a certainty. Usually, they do not make up the bulk of the colors in a cross but represent the minor segregation. Intercrossing and line breeding of these blue segregant should in time produce strains of "blues" that will breed true to seed.

The next large section to be considered in the Dendrobium hybrids are the hybrids developed from Den. taurinum. This species was first discovered by Mr. Cuming in the Philippine Islands and was sent to the nursery of Messrs. Loddiges in England where it flowered in October of 1842, 110 years ago. Imported jungle plants of this species were then, and still are, hard to establish and get to grow. Plants raised from seed, or hybrids raised from it are on the other hand among the most vigorous and easy subjects to cultivate. The name taurinum comes from the imagined likeness on the part of the taxonomist to the lip resembling the face of a bull, and the petals, the horns. Thus, it is commonly called the "bull's horn orchid." The first hybrid to make its appearance from this fine species until the middle 1930's was Den. Sander's Crimson, the cross of Den. taurinum x Den. phalaenopsis Schroderianum, registered in 1935. At about the same time hybridists in the Dutch East Indies all produced such hybrids as Den. Bali, Den. Batavia, and Den. Bangkok which are all nothing more than crosses of Den. taurinum with other varietal forms of Den. phalaenopsis.

The first Hawaiian hybrid of Den. taurinum was Den. Taurus, produced in 1941, by the early commercial pioneer hybridizer of Hawaiian Dendrobes, Miss Ellen Williams. This is the cross of Den. taurinum x Den. undulatum. Since this first beginning in 1941, Den. taurinum has been used prominently in Hawaiian work.

Den. Helen Bromley, a hybrid between Den. Taurus x Den. tokai is typical of this group. Great vigor of plant growth, exceptional flower production, mark this extremely beautiful subject. It is also proving itself a good parent.

Den. Shibata is a good companion subject to Den. Helen Bromley. It is the cross of the species, Den. taurinum x Den. tokai. It has a much more prominent "bull's horn" shape than does Den. Helen Bromley. Den. Shibata is being used as a parent to a considerable extent in modern breeding.

Den. 442nd Infantry, the hybrid of Den. taurinum x Den. veratrifolium is another fine example of this type of hybrid. Again, great plant vigor with tremendous production. This hybrid, too, is giving considerable promise as a parent.

Den. 100th Battalion is another of the fine "bull's horn" types. This is the result of crossing Den. Taurus x Den. veratrifolium. Here we have a tremendous variation in colors from buff to yellow, salmon to apricot, and all the interesting

warm shades.

Again, in this section the number of recorded hybrids is too overwhelming to mention them all. More recent hybridizing efforts are aimed at keeping vigor, but reducing plant size. This highly interesting flower type, contained in a moderate size will make a fine subject for amateur growers. We have many such crosses available today.

The next of the large sections to consider is Den. undulatum. This species is a native of North Queensland. Like the other mentioned, it did not find its way into hybridizing until the mid 1930's and early 1940's. Now some ten to fifteen years later it represents one of the key plants in this work. It imparts great vigor to its offspring. It has heavy production of long sprays of flowers, a quaint curly waving of the sepals and petals on the individual flowers. It also figures prominently in color intensity where lavender flowers are concerned. Used in back parentages with the species Den. veratrifolium, it produces blues. It extends the season of flowering considerably in it hybrids. It is an extremely heterogygous species and when selfed it produces every imaginable type, brown to pure light yellow. All of these important breeding facts have been brought to light in just a few short years.

Among the best examples of its hybrids are such things as Den. Hula Girl. A cross of Den. Hawaii x Den. undulatum, this hybrid has truly produced some beautiful things. Wide color range with undulating, swirling, appearance of the flowers suggesting its name, Den. Hula Girl.

Den. Owen, a cross of Den. Bali x Den. undulatum, is another good example of a fine Den. undulatum type hybrid. In this cross many outstanding deep-red colors have appeared. These almost look as if they were mixed up with Sophronitis blood.

The influence of this species on other groups in such hybrids as Den. Louis Bleriot, Den. Salak, Den. Ursula, Den. Helen Bromley, and Den. Taurus. Truly, Den. undulatum can be recorded as one of the most prominent forefathers of modern Dendrobium hybrids.

The last group of Dendrobium species to consider in the development of Hawaiian hybrids is Den. gouldii. A very rare plant was this until World War II sent soldiers from the United States to many inaccessible Islands in the South Pacific. Hawaii, a training and staging center for these troops, interested them in orchids. Thus, many a soldier or marine who had been extended the hospitality and warmth of a Hawaiian home during his training period went forward to battle with the hope that he could send back to his host a plant or two of some new orchid. Such was the case of Den. gouldii. This species found by Schlecter in his early botanizing of the South Pacific remained a long lost treasure. When our troops invaded Guadalcanal, this species was found in considerable numbers. It was returned to Hawaii and called Den. Guadalcanal for several years. Other importations of it found their way back as a bulb or two in the duffel bag, or back pocket of pilots, sailors, or traveling merchants. Thus, an important addition to our breeding stock came to Hawaii both as the result of hospitality and adversity. That men had the desire to look for beauty and add to horticulture during a time when they were faced with the loss of their life in a steaming hot jungle island, is a tribute to mankind's finer heritage.

Den. Guadalcanal, the first hybrid registered from Den. gouldii was so

named in honor of its importation and the fact is that the species carried this name for a long time. It is the result of crossing Den. Hawaii and Den. gouldii. It contains a great many interesting forms and colors.

Den. Jaquelyn Thomas shows the result of crossing the species Den. gouldii with Den. phalaenopsis. Actually, we hoped here to maintain the yellow color of Den. gouldii but increase its size. Thus, the Den. phalaenopsis var. Mauna Kea was used. However, the interesting result of color intensity crops up again and we got a range of lavender flowers, some of which are very dark.

Den. gouldii must carry recessive genes for lavender. So apparently does Den. phalaenopsis Mauna Kea. Thus, the mating of the two produces full lavender color.

Den. T. Shioi shows what happens when Den. gouldii is crossed with Den. taurinum. This hybrid has produced some of the darkest forms yet.

It can be summarized that Den. gouldii imparts vigor to its offsprings - very heavy production, and bears watching as a color intensifier. More and more of the Den. gouldii hybrids are making their debut each year. We feel it has a great promise as a contributing parental influence on modern hybrids.

The number of Dendrobium hybrids produces in Hawaii is much too large to attempt to describe them all. We have tried to tell you of representative types, not the very fines, nor yet the poorest. We definitely wanted to strike an average and to show you what you can expect from the various species.

Culturally these hybrids are exceedingly easy to handle. They flower more than once a year. The old bug-a-boo that Dendrobiums are tricky, hard plants to handle does not hold true with them. Their flowers can be used for all purposes. They offer a challenge to your floral artistry. Truly, we will accept the word "novelty" if by that you see they are different. We feel that the amateur orchid grower is entitled to breeding work that has as its main purpose the production of plants that are different, easy to handle, easy to flower, have long lasting flowers, and can be used effectively for display purposes either in the home or the greenhouse. To this end, we feel our Dendrobiums will stand the test.

Vanda Sanderana

by Robert Warne [32]

Vanda sanderana was discovered by Mr. M. Roebelin, collecting for Sander and Co., in 1882 in the southeast part of Mindanao. It was immediately recognized as an outstanding orchid and named after the Sander Co. It has remained the prize show plant in many private and commercial collections ever since. However, it did not take its place as a profitable plant and choice breeding plant for commercial nurseries until the recent interest in strap-leaf Vanda hybrids through the tropics and warmer parts of United States. Although I do not agree with those who say "Any strap-leaf Vanda hybrid that does not have some V. sanderana blood had just as well be thrown in the rubbish can," certainly most of the best hybrid Vandas *do* have *some* V. sanderana blood.

Considering this, it would seem that anyone growing strap-leaf Vandas should study the natural habits of this plant. While we lived on Mindanao for several years, I shipped my brother here many V. sanderana, and collected some information that may help others. The table below is taken from the Philippine government publication "The Climate and Weather of the Philippines, 1903-1918." Most of the plants of V. sanderana are collected near Davao, Mindanao. Davao climate is given.

-DAVAO, MINDANAO, P.I.- -SURIGAO, MINDANAO, P.I.-

Month	Inches of Rain	Mean Daily Temperature	Ave Mean Relative Humidity	% of Sky Covered by Clouds
January	5.4 in.	79 degrees	88%	73%
February	6.1	79	86	71
March	7.6	80	86	63
April	7.6	82	86	60
May	7.1	82	85	58
June	7.2	80	84	64
July	8.6	80	81	70
August	8.7	80	79	66
September	9.0	80	81	71
October	11.6	80	84	68
November	7.5	80	87	68
December	8.7	79	88	74

Surigao is on the coast of Mindanao about 80 miles north and has a climate similar to Davao except it has a little more rainfall than Davao in the winter months. Davao is about 5 degrees north of the equator so there is very little difference between winter and summer temperature. The high during the days would run about 7 degrees Fahrenheit above the mean temperatures, and the low at night about 7 degrees below the mean, which would mean that the temperature would run around 88 degrees Fahrenheit just after noon and around 73 degrees Fahrenheit about sun-up. The relative humidity was high and there was about 8" of rainfall each month throughout the year. Usually the

sun would shine through the mornings and it would rain each afternoon.

In order to compare Davao climate with something we are familiar with, the following data was obtained from our local Weather Bureau for the average July weather in Hilo - mean high 83 degrees Fahrenheit, mean low 67 degrees Fahrenheit, av. humidity 81%, rainfall 9.9" and percent of sky covered with clouds 80%. Roughly, if we added five degrees to Hilo's July temperature and had a little more morning sunlight, we would have weather about like Davao has the year around. However, Hilo would be about 10 degrees Fahrenheit cooler than Davao in winter as Davao stays about the same the year around while Hilo is a little cooler in winter.

Although V. sanderana were at times found as high as 2,000 feet elevation, most were found from sea level up to 3000 feet elevation. They usually grew near the tops of tall hardwood trees (mostly Yakal), with the roots running up and down the branches of the tree and some dangled in the air but practically none were covered with moss. Notice the roots in the picture showing V. sanderana growing on the original tree branches just after they were cut from the forest. As they grew naturally in the trees, they were probably shaded by clouds most of the afternoons, had broken light through the tree branches above them about half of the remaining time and were exposed to full sun about one fourth of the day but for short periods at a time. People in the Philippines usually grew V. sanderana, or "Walling-Walling" as they called it, on Yakal logs or in baskets made of hardwood 1" x 1" slats with the chief media used being large pieces of charcoal about 2" in diameter and 5" to 6" long. A few pieces of coconut husks about the size of a banana were added. The roots of the orchid clung to the slats of the basket and the charcoal with one side of the roots exposed to the air. A few roots would enter the coconut husk and many would dangle in the air. These baskets were hung under trees in the yard giving light shade. Trees giving more shade were used in dryer climates. Similar methods have been used most successfully in Hawaii but tree-fern fiber is usually substituted for coconut husks. The hybrids are grown by about the same method but with a little more tree-fern fiber.

Although the people in the Philippines usually choose the darkest colored "Walling-Walling" as the best plant, the judges in Hawaii and the States have given the most consideration to shape of the flower. Most breeders consider the shape of the flower most important also, as they feel the hybrids will follow the other parent for color anyway. This has proven true in the primary hybrids and most secondary hybrids. However, to get a fine V. sanderana species from seed, one should choose one or both parents with good color as well as shape and of course in any breeding, vigorous growth, size of flower, number of flowers, etc. should be considered. Most Honolulu orchid people are acquainted with V. sanderana Var. Terry and Mr. Tanaka's Var. Tanaka, both of which have won A.M. awards. However, I believe some of Mr. M. Kono's V. sanderana have the best shape and we have included pictures of two of his best to show what the judges consider fine flowers. Note the round shape with the petals and sepals overlapping. To me Kono's No. 15 has about reached perfection in shape and should receive 100% of the points allowed for shape. If the plant had the petals and sepals overlapping more than this, I don't think it would be any prettier, and for a plant to beat this one, it would have to beat it on flower size, color, number of flowers or some other points. However, that is just one man's opinion and the judges who pass on your plants may have different opinions. Certainly the seedlings from two good sanderana crossed are producing much finer flowers on the average than the plants brought in from the forests. In

fact I think all the local plants that have won any awards have been locally grown seedlings. Some are now flowering from second generation hand-grown seedlings and the average is fine.

Let us now consider the hybrids from V. sanderana. The primary hybrids flower quite uniformly in each cross and all seem to take the color chiefly from the other parent. V. Ellen Noa (V. sanderana x V. dearei) has the yellow color similar to V. dearei but not as clear a yellow; V. Rothschildiana has the blue color of coerulea but perhaps a little on the purple side and V. Henrietta Ho takes the brown and greenish brown from the V. sumatrana parent, etc. V. sanderana is one of the few Vanda species that does not have its petals twisted around and this flat shape fortunately is inherited by the primary hybrids. The size in these primary flat-leaf hybrids comes intermediated between the two parents, often a little nearer the smaller parent. The width of the petals follows more the sanderana parent so most of the primary hybrids have a full round flower but not quite as full as the V. sanderana parent unless the other parent also had wide petals like V. dearei or V. coerulea. The primary hybrids are more vigorous growing and faster growing than V. sanderana and more free flowering. This free flowering quality varies with different crosses and with different plants in the same cross. Some V. Manila may flower fifteen times a year and some V. Henrietta Ho may only flower twice per year.

Closely related to the primary hybrids are the crosses having V. sanderana for one parent and a hybrid from two other species for the other parent. In this case the offspring have most of the characteristics of the primary hybrids in size, shape of flower, free flowering habits etc., but the color varies, with some taking after one of the other species and some after the other but none after the V. sanderana parent. For instance V. Honolii comes in pinks and blues and shades in between. V. Ernest Fujinaga (V. Caroline Robinson x V. sanderana) produces pink, brown, yellow and grey flowers as you might expect from V. Caroline Robinson which is V. roxburghii x V. tricolor.

When one of the primary V. sanderana hybrids is crossed back on V. sanderana again, large fine shaped flowers are produced, but at times some of the vigor and free flowering characteristics of the primary cross are lost. Some of them resemble the V. sanderana in color and markings, but most follow the other parent making up one-fourth of the parentage. V. Onomea (V. sanderana x V. Rothschildiana) produces fine large flowers and they may be blue, pink or in between and a few resemble the V. sanderana parent in having the lower sepals brown and the upper parts of the flower on the pink side but do not look quite like the V. sanderana parent. Some of the V. Bill Suttons (V. Manila x V. sanderana) look enough like V. sanderana to be mistake for it at first glance but most follow the V. Manila parent for color. However, in this group are found some of the fines shaped and best Vanda hybrids.

What happens when one of the V. sanderana hybrids is selfed? Here we get much more variation than in the first cross. Although all the V. Rothschildiana in primary hybrids are blue, as far as I know, some of the offspring from V. Rothschildiana selfed come pink and retain the V. Rothschildiana shape. One of the finest Vandas I have seen is the plant of V. Clara Shipman Fisher, selfed, owned by Mr. T. Ota of Hilo, and which recently won an A.M. award from the American Orchid Society. This one plant came with fine shape and good colored flowers while many of its sisters were quite ordinary. Certainly some of the show plants of the future will come from these two last groups mentioned.

In the hybrids having only one-fourth V. sanderana blood, we see very little of the V. sanderana influence, except a little in size. V. Joan Swearingen (V. Rothschildiana x V. luzonica) comes in pinks and blues but most twist the petals some. V. Tita Marks (V. Rothschildiana x V. Mem. Iwasaki) usually has the twisted petals also. In this case we have V. sanderana, V. coerulea, V. dearei and V. tricolor, each making one-fourth of the parentage and, as you would expect, most every color is produced. Although some are bright and pretty, many of the flowers are muddy or washed out in color and poor in shape.

In some of the semi-terete Vandas produced from V. sanderana, the flowers come large than those of either parent. We sometimes find this large size in V. Velthius (V. sanderana x V. Miss Joaquim) and sometimes in V. Maurice Restebo (V. sanderana x V. teres). Some of the plants in these two crosses are stubborn to flower. It seems to depend quite a bit on the particular variety used in the terete parent as the V. Velthius produced from some varieties of V. Miss Joaquim are quite free flowering. Princess Elizabeth (V. sanderana x V. hookerana) is free flowering.

Perhaps we should mention a few of the hybrids produced with other genera. Rda. Jack Warne (V. sanderana x R. Storiei) and Rda. Titan (V. sanderana x R. Imschootiana), both are slow and difficult to grow and take many years to flower. However, both are pretty and take the color from the Renanthera side. Trcv. Ulaula (V. sanderana x T. Braciata) is also weak-growing but has very pretty red flowers. Vdnps. Jawaii (V. sanderana x Phal. denevei) produced rather small olive-brown flowers. This in turn was crossed back on V. sanderana making Vdnps. Frank C. Atherton, some of which resembled the Vdnps. Jawaii parent in size and color but some had more of the V. sanderana characteristics.

The recent flowering of V. Nellie Morley (V. Emma Van Deventer x V. sanderana) and the many awards that various plants of this cross have won, has created a lot of interest in breeding crosses between semi-terete Vanda and V. sanderana. Dr. H. H. Kamemoto informs us that all the V. Nellie Morleys that he has examined are triploids which may explain the difficulty in getting seed for producing them or in getting seed from this group after it is produced. Certainly the best V. Nellie Morleys are of fine color, heavy texture and superb shape. V. Nora Potter (V. Velthuis x V. coerulea) is only one-fourth V. sanderana, yet has very large heavy flowers. Dr. W. B. Storey informs us that he examined several of these plants and all were pentaploids, having 95 chromosomes compared to only 38 for the various species used in making this cross. V. Princes Beatrix x V. sanderana has recently flowered and here again we are told the plants examined are polyploids. Although it is difficult to get seed from semi-terete Vanda crossed with strap-leaf Vanda, many breeders are working hard along this line expecting good things from new crosses.

In conclusion, it should be pointed out that many fine V. sanderana have been produced from crossing fine parents and many fine hybrids have been produced from V. sanderana. Although some disappointments may occur in future crosses, certainly some plants will be produced that are better than anything produced to date.

Cymbidiums . . . Hawaii

by George Machida [33]

The genus Cymbidium comprises about 30 identified species of which only ten have been used to produce the prolific and beautiful hybrids known today. The first Cymbidium (Cym. aloifolium) was introduced to Europe in 1786, but being a dwarf variety with small flowers, it did not create much interest. It was not until a hundred years later when Cym. eburneum (5-inch white flowers), and Cym. lowianum (large green flowers) were introduced that orchidists developed interest in this genus.[1]

Since then, numerous hybrids have been developed and of these, the most outstanding and famous is Cym. Alexanderi 'Westonbirt' FCC/RHS; a tetraploid. The Cymbidium world owes an enormous debt of gratitude to this illustrious parent whose progeny has become a byword for excellence with growers everywhere. Cym. Alexanderi 'Westonbirt' is preeminent not only as an immediate parent but as a rich source of influence over descendants which are rapidly becoming distinguished as parents in their own right. Of this new and exciting group of Cymbidiums, Cym. Rosanna 'Pinkie,' the Cym. Balkis, and the Cym. Babylons are exotically beautiful examples.[2]

Some of the outstanding hybrids of Cym. Alexanderi 'Westonbirt' are Cym. Alexette, Cym. Alexfrida, Cym. Cooksbridge, Cym. Jungfrau, Cym. Bodmin Moore, Cym. Dorchester, Cym. Swallow, and Cym. York. These are the older hybrids but are still in demand because of their excellent quality. Of the more modern hybrids Cym. Grace Mitchell, Cym. California, Cym. Gwen Sherman, Cym. Rosarita and Cym. Mazatlan are good examples.

Adaptation to Island Conditions

Generally speaking, the lower the elevation, the more difficult to flower Cymbidiums. At sea level the plants seldom initiate flower spikes, at elevations of three to five hundred feet flower spikes develop but there will be considerable bud drop. With progressive increase in elevation there will be less bud drop with the optimum elevation being between two to three thousand feet. Heat is also a factor in the quality of the flower. The bud develops too fast with excessive heat, consequently it lacks both substance, texture and size.

Cym. Tracyanum and its hybrids are the easiest to flower in the Islands. The color of the flower ranges from brown to greenish brown and are many flowered on the spike. It however, lacks substance and does not last as long as other Cymbidiums. Because of this factor Cym. Tracyanum is not often used in modern hybrids.

The hybrids of Cym. erythrostylum are also adapted to warmer conditions than the usual Cymbidiums. The only disadvantage of this group is that the petals are hooded, a condition generally referred to as "rabbit ears." This trait is dominant and is inherent in all the hybrids of Cym. erythrostylum.

The better flowered Cymbidiums such as the hybrids of Cym. Alexanderi 'Westonbirt' are more difficult to bloom. The species that make up this class of Cymbidiums are found in India and Burma are as at elevations of 2,000 feet up to as high as 6,000 feet. In the Islands, these will flower at elevations above 1,000

feet.

Culture

Cymbidiums are the easiest orchids to grow. Their basic requirement is a light well aerated compost which allows heavy watering and feeding. All of the Cymbidiums in the Hilo area are grown in a compost of hapuu fibre and volcanic cinders.

The growing of Cymbidiums does not differ from other orchids. Seedlings from flask are grown in pots or flats in a compost of Sphagnum moss or peat moss or a mixture of the two. Fertilizing is by liquid feeding. Insect control is mostly for red spider. When ready, the seedlings are transferred to 4 inch pots and grown under 50% shade until they form matured bulbs, at which time they are ready for 8 inch pots and can be grown under full sun.

General Notes

Cymbidiums are grown extensively in the United States, especially in California. They have made great strides in hybridization and now lead the world in this field. Hawaii lags behind primarily due to its late start and to the fact that they have to be grown at high elevations which eliminates many hobbyists. Then too, the cost of proven stud plants is prohibitive.

Commercially, the Cymbidium is the number one corsage flower. The lasting quality (up to six weeks after being cut; 2 to 3 months on the plant), the variety of colors, and the good size make it ideally suited for the florist. Australian flowers that have been shipped to the mainland in October have been kept in coolers for the Christmas trade.

Miltonia

by J. Milton Warne [34]

Miltonias are not seen very commonly here in Hawaii but are greatly admired when shown. The genus is closely related to Odontoglossum and also to Oncidium and Cochlioda, with which genera there are quite a few hybrids. Having comparatively little commercial value, they are not grown to any large extent in the U.S. but have achieved wide popularity in England. The genus Miltonia contains many beautiful species and is probably deserving of more attention here in Hawaii.

The first thing to point out about these plants is that there are two very distinct sections of Miltonia. They can be roughly divided by source, those which come from Columbia and those which come from Brazil. The same sections can be obtained by flower, with the pansy flower type coming from Columbia and the flowers of other patterns coming from Brazil. Still another way is by type of growth, and this is listed in the botanical descriptions. The Columbian species have the pseudo-bulbs closely clustered, while the Brazilian species have the pseudo-bulbs spaced more or less widely on the creeping rhyzome. Let us follow these natural sections in growing miltonias.

The Columbian species include the two which have been used most in hybridizing in England, Milt. roezlii and Milt. vexillaria. So far as I am aware, there are no existing plants of Milt. vexillaria in the Islands. Milt. roezlii in the form of Milt. roezlii var. alba is grown here. We imported our start of this from Lager and Hurrell in 1931, and the following year flowered it in our old location on Beretania Street, and have flowered it each year since. However, it has done much better during the years since we have been in the cooler and wetter Nuuanu district. We raised selfed seed from Milt. roezlii alba which flowered uniformly the white alba flowers.

Hybrids of the Columbian species are somewhat more commonly grown here. About fifteen years ago, a number of Miltonia hybrids were imported here both from England and from the U.S. Of the forty hybrids which we imported, three only have prospered. These are Milt. Ketha, Milt. William Pitt, and Milt. Sybilla. From these we raised two lots of seedling which we have shown as Milt. Bleuana, Nuuanu type, or as we have them labelled, simply as Milt. Nuuanu, which name has not been registered inasmuch as Sanders no longer accepts naming of repeated Miltonia crosses as most contain only the two original species. We have had generally better results in growth with Nuuanu than with the parent stock, and now have them in flower throughout the year. Of our seedlings, most are colored predominantly white as is the case with most Milt. Bleuanas. Only three of them came with the dark red coloring, and while one of these at least is an exceptionally fine flower, the dark ones have not shown the vigor of the lighter colored plants.

Also in the Columbian section, we imported Milt. phalaenopsis several years ago, which we have flowered but which so far has not attained much vigor.

Apparently the first Brazilian type Miltonia in Hawaii was Milt. bluntii, a natural hybrid of Milt. clowesii and Milt. spectabilis. This was in Honolulu in 1931 when I came here, and according to the information given me at that time had come from Hilo and indirectly from a "ship captain." Whether this

information is correct or not I do not know, nor who the first grower in the Islands was, but the plant certainly prospered here. From our original plant, we have produced hundreds of new divisions and have them growing as clumps on tree fern stumps at the nursery. We raised a few selfed seedlings from Bluntii, the first of which flowered last year with flowers showing only slightly more brownish coloring than the parent.

After the early start with Milt. bluntii, apparently no more Brazilian Miltonias were imported here until Milt. spectabilis var. Moreliana arrived twelve years ago, and Milt. flavescens about the same time or perhaps a little earlier. In recent years there have been quite a few more, including Milt. regnellii, Milt. clowesii, Milt. candida, Milt. warscewiczii, and the natural hybrid Milt. festiva (Milt. flavescens x Milt. spectabilis). All of these seem to be thriving in Honolulu.

The only hybrid raised locally from them so far is our Milt. Anne Warne (Milt. bluntii x Milt. spectabilis var. Moreliana), which are colored as Moreliana but are superior in shape, floriferousness and apparently in vigor. Although there are listed natural hybrids of most of the Brazilian species, almost nothing has been done horticulturally.

While the Brazilians cross readily with other Brazilians, and the Columbians with other Columbians, and both cross with Odontoglossums, hybrids between the two sections are almost unknown. One listed is Milt. keighleyensis (Milt. spectabilis x Milt. vexillaria) by Mansell and Hatcher in 1924.

The culture of the two sections of Miltonias is as different as the plants are in other respects. The Brazilians take most willingly to our usual Honolulu practices. They grow easily in pots in either osmunda or tree fern, do well in baskets, and are especially suited to garden culture planted on tree fern stumps in a partly shaded location. They like frequent and liberal watering and seem to have no particular insect pests.

Our best results with the Columbian sections is by planting in osmunda, with the pots always small. They seem to flourish in a pot which appears much too small, and we use nothing larger than three-inch pots, and most generally two or two and a half inch pots. They like fairly heavy shading and daily watering, and you might compare these factors to good Cypripedium practice. Perhaps they are intolerant of the warmer parts of Honolulu, although it has not been shown that the problem is other than shading, watering and humidity. They definitely will not thrive if placed on a bench where Dendrobiums, vandas or Cattleyas are growing well and treated as you treat those plants.

Elsewhere in the Territory, Mr. Herbert Shipman has a fine collection of Miltonias at his volcano place. There are a few plants doing very well indeed at Wahiawa, which again is at a higher elevation. Generally, however, the genus is sadly overlooked in Hawaii, and offers a great amount of promise to our orchid hobbyists. Some day we should have in Honolulu a great variety of hybrids of the Brazilian sections, growing more or less naturalized in our outdoor gardens. The Columbian Miltonias are more of a challenge to anybody willing to give them their special care, but the great beauty of the pansy type is full reward for the attention.

Keiki O Hawaii (Children of Hawaii)[35]

Is it because Hawaii is very young geologically that we do not find more indigenous orchids to describe and write about? Taxonomists claim two or three insignificant species, one of them the Liparis found as a terrestrial in the jungles on the island of Hawaii and another a very fine honohono like plant found in the swamp on Mt. Kaala, 4000 feet high. But we are producing a wealth of new and interesting material.

Climatically Hawaii is acclaimed very suited for many kinds of orchids; it is sometimes referred to as the most natural greenhouse in the world. Nearly all types of orchids are grown and flowered by man's care and already three genera - Arundina, Phaius and Spathoglottis - have naturalized or established themselves on the island of Hawaii; Oahu has the Spathoglottis. Others like the Epidendrum, Dendrobium, Vanda and Oncidium may naturalize if the seeds or seedlings were scattered around the mountainside at the right time. They many not be indigenous but surely interesting hybrids can result.

What nature has not done many has done for Hawaii. Taking advantage of the climate orchidists in Hawaii have hybridized and brought into the orchid world many new and lovely flowers. What geneticists thought impossible orchidists have broken the barrier and produced bi-, tri- and tetra-generic crosses, unbelievable crosses until you see them, to further the interest in orchids.

Leader among these hybridizers is Mr. W. W. G. Moir, who, I believe, is the most prominent and outstanding of the inter-generic cross makers. He once let leak-out that he works with the moon phases in making his tri- and tetrageneric crosses. Another barrier breaker is Rev. Masao Yamada, who has made many lovely bigeneric crosses. Does he commune with the gods or offer a prayer each time he makes a bigeneric cross and the results are their blessings? I don't think it matters much how they do it but thanks to them Hawaii can enjoy new flowers found no place on earth, taxonomists and botanists will never find them in the wilds or in nature.

Mr. Knudsen's nutrient agar is largely responsible for the development, however, many modifications have been made. Changes and additions resulting in a media more suitable for root growth and top growth facilitated earlier removal from the flask into compots and thumbpots. To further hasten this process, reflasking, some call it replanting, is done, often once but sometimes more than once.

Not satisfied with the normal procedure of ripe seed culture, embryo culture was utilized. It has made possible the growing of very difficult to grow crosses because they lose their viability by the time the pod is ripe. This has helped develop intergeneric crosses. Embryo culture also has shortened the time from pollination, seed development to germination; there is no waiting for the seed pot to ripen and months have been cut down.

In less than a year the new seedling is on its way in a thumbpot and two or three years later lo and behold, we have a new flower, a new shape, an intergeneric cross!

We have been writing about these new crosses being registered, winning

awards or being in displays but have not described them. A good taxonomist can give a better description of the flowers and plants in more detail and scientifically acceptable manner but unfortunately we cannot afford one. Some may claim a half-baked stuff is bad but we feel some attempt, layman understandable style, will be better than none. We do this feeling that the orchid people would like to see, when a picture is available, and want to know more about the new crosses than just the registered name from London, and maybe way inside take a little pride in the man made crosses developed in Hawaii.

In this section, "Keiki o Hawaii" (Children of Hawaii), we will try to describe only the intergeneric crosses, intra-generic crosses may slip in here and there because we think they merit description. Comments, pro and con, are invited and welcomed, send them to the Editor, Thanks.

1. Ariz. Luis

This trigeneric was made on Epg. Olivine using C. guttata var alba. The plant is about 4 inches high but the cluster of three flowers almost covers the plant. The sepals and petals are gold with red veination. The convex labellum is pale yellow with dark rose flush on the outer half of the labellum. Both parents were green and white but the color comes from the maternal grandmother Dga. hymenodes. The flower is 3-1/2 inches across, named for Luis Ariza Julia of Republica Dominicana.

2. Ttps. Candy Stripe

This bigeneric from Lps. domingensis and Ttma. canaliculata has medium pink flowers on 2 foot long spikes. The flower is about 1-1/2 inches across and is beautifully striped like some peppermint candy. The Tetramicra parent is mostly lip and very intense pink with deep rose stripes. This flat flower has the ability to produce fine lips and helps to flatten tubular lips.

3. Tttna. Dark Prince

This bigeneric from Bro. sanguinea and Ttma. canaliculata is an opener form than Ttps. Candy Stripe and is much darker, actually a deep red with pale yellow lines in the lip and in the throat. Like the Tetraliopsis it has a long spike and several flowers to the head. The plant has semi-terete leaves about 5 inches long like Tetraliopsis, both acquiring these leaves from the Tetramicra parent.

4. Blma. Jim

The parents are Lpna. Kingston and Ttma. canaliculata. In this case the Tetramicra is one half and the other is Broughtonia times Laeliopsis. In this case the Tetramicra is much more dominant however there is a tubular lip with distinct stripes. This was named after Jim Bloom of Ft. Lauderdale, Florida, an orchid nurseryman.

5. Osmt. Bill

This trigeneric is of Lpna. Kingston and C. R. Prowe. The flower is about 4 inches across. The plant is very much like the Cattleya in growth but with foot long spike with many flowers. The flower in itself is not very showy but it

is a good breeder with Cattleyas. This was named after Bill Osment in Hollywood, Florida, an orchid nurseryman, plant collector and interested in shells.

6. Ddma. Little Gem

This bigeneric of Dga. hymenodes and Hex. pulchella is a miniature grower with 6 inch stem having two to three red flowers flat, well veined in deeper red. The whole flower is about 1-1/4 inches across.

7. Vnra. Hawaii

This cross of Bc. Leeman and Epi. atropurpureum roseum has a very large flower, slightly smaller than the Bc. Leeman. Its color is brown red sepals and petals and the red lip is striking. The ruffled petals and lip with straight sepals shows the strong tendency of the B. digbyana grandparent in Bc. Leeman. This again proves the value of the Epi. atropurpureum for a parent.

Some Interesting Aspects of Vanda Breeding

by Oscar Kirsch [36]

For a good many reasons the hybridizing of Vandas had a rather late and slow start. The large size of the plants and the comparatively small flowers of most species, made Vanda breeding a rather unprofitable venture for the commercial orchid nurseryman. A few plants were kept here and there, more as curiosities than anything else. This is probably one of the reasons why most of the early hybrids were produced in botanical gardens. Altogether, only 4 Vanda hybrids were raised before 1920; only 6 more during the 1920s, 15 more during the 1930s, plus a few more produced in the East Indies, which, at the time, did not register through the central agency. The Vandas followed the general line of all other early orchid hybrids and not much thought was given to the choice of the parents. Anything was new and every new hybrid was a surprise. Most of the parent stocks used were of the smaller blooming types, such as V. suavis, V. tricolor, V. teres, etc. This picture changed radically with the entry of the V. Sanderana hybrids. Although V. Tatzeri (V. tricolor x V. Sanderana) was registered by the Botanical Gardens of the University of Prague, in 1919, none of them reached the Hawaiian Islands until many years later.

Once the possibilities were realized, the flood gates opened and practically everything was crossed with V. Sanderana. These primary hybrids, such as V. Rothchildiana, V. Manila, V. Mary Foster, V. Burgeffii, brought home one fact, that is, the size, shape and habit of growth of V. Sanderana are highly dominant in most instances. The few exceptions were crosses with, for instance, Ren. Storiei or V. Spathulata, which are in themselves extremely dominant in almost all respects. V. Sanderana was definitely recessive in its coloring in the first generation. The next generation, which put in its appearance in the early 1930s, brought no end of surprises. Whenever primary Sanderana hybrids were crossed back on to the other parent, the results were disappointing as far as shape and size were concerned. The round, full shape of the primary Sanderana hybrids disappeared in the back crosses on to the smaller parents, and the resulting hybrids, while considerably larger than either tricolor or suavis, had lost their balance and the charm of the original species. I would like to point to early registrations such as V. Messneri (V. Burgeffii x V. suavis), V. Schoellhornii (V. Burgeffii x V. tricolor), V. Wettsteinii (V. Burgeffii x V. coerulea) and many more. The picture however was quite different in the back crosses on to V. Sanderana. In most instances the size and shape of the resulting hybrids was at least maintained and, in many instances, considerably enhanced. In addition to this, the color factors of three V. Sanderanas were added to the one of the fourth grandparent, and the wide range of thoroughly pleasing colors was the result. I only have to point to V. Onomea, V. Ohuohu, V. Honolulu, V. Clara S. Fisher, V. Bill Sutton and many others. Much of the credit for the many improved types goes, of course, to the geneticists of our various experiment stations. They were able to give us the reasons for the strange behavior of some of our crosses and, therefore, were able to help us avoid repetition of our mistakes.

Work on the semi-tetrete types of Vanda was, for a long time, handicapped by the supposed sterility of V. Miss Joaquim. Although this charming little Vanda is the earliest hybrid on record, having been registered in 1893, no record of a succeeding generation appeared until the early 1940s. For some

reason it had always been considered to be sterile. Examination, however, of the chromosomes established it to be a triploid. From then on, of course, it was only a matter of finding suitable parents. V. Mevrouw, V. L. Velthuis, V. Eva Sumner, V. Acala, etc., proved that it could be done. Once the ice was broken and a number of tetraploid parent plants were available, beautiful new hybrids such as V. Nora Potter, V. Nellie Morley, V. Noel, V. Leilani, etc., arrived and became famous the world over.

It is only human nature to aspire to new fields and in this respect Vanda breeders are not different. The next step is to cross Vandas with allied genera that promise desirable results. I would like to point to the various combinations with Arachnis, Aerides, Renanthera, Vandopsis, Saccolabium, etc. Some of the older ones, such as Rnps. Lena Rowold, Vchns. Premier, AV Blue Spur, AV Penny Silva, AV Tsuruko Iwasaki, Ascda. Meda Arnold and Ascda. Portia Doolittle are well-known. Many more have been produced in recent years.

Each new success opens, of course, the road to new possibilities. With all the information available from our experiment stations as to the probable behavior of our new combinations, together with past experience acquired the hard way, we should be in a position to produce new hybrids that will justify us in calling our island "The Orchid Center of the Pacific."

Notes on Hawaiian Orchids and Their Growers

by Austil Keller [37]

The orchidophile visitor from the mainland to Hawaii is overwhelmed by many things so outstanding in his particular hobby that anything he may write about must be hedged with a degree of restraint. Otherwise the initiated might read his enthusiastic words with a great deal of skepticism.

If any one thing about Hawaiian orchid growing were to be singled out as so different from the mainlander's experience, it would be that everyone - literally everyone - who has a yard and garden, and is inclined to grow plants of any kind, grows orchids. Rich man, poor man, baker and banker - no level of society in Honolulu is without avid orchid culturists.

The main reasons for such widespread interest in orchid growing are (1) the climate, which is perfect for many genera and (2) the people, who in the main are natural gardeners and flower lovers. Such a combination puts Cattleyas in humble crude lath houses and expensive conservatory-type greenhouses, on the roofs of garages, and the trunks of many trees. Morning after morning of our stay in Honolulu we read a newspaper report - "Max. Temp. 81 degrees Min. Temp. 62 degrees, rainfall - a trace - forecast - sunny, some afternoon cloudiness" and this in the last of January. The people are made up of a heritage from many races - including mainly Japanese, Chinese, and Polynesian, all noted for their historic love of flower culture. Such inheritance naturally produces a high percentage of floriculturists. Contrast the many thousands of orchid growers in Honolulu with our own home town of Longview, Washington. Here we are the only members of the American Orchid Society and, so far as we know, the only orchid growers in the town itself. We will feel quite alone at home.

Due to such a great number of enthusiasts and, of course, a corresponding great number of orchid nurseries to supply them, it was quite impossible for a short term visitor to see and report on all. We did try to visit, talk with and photograph as many as we could and we do hope those unmentioned great numbers will not feel we have intentionally passed them by.

Hybrid Cattleyas are grown mainly in the conventional manner, that is, in clay pots, potted quite firmly in a compost of osmunda fiber. The number of very good crosses is quite amazing, and outstanding plants were found in even the smaller collections. Since housing and heating costs are a very minor factor in growing, it is quite natural to find the advanced grower investing in plants we at home hesitate to acquire. Plant growth seems somewhat smaller than we are accustomed to, but florescence is excellent. Pseudobulbs, which we at home would consider quite small, produce good crops of flowers of substance and color. We saw some experimentation with Cattleyas in full sunlight, and the plants which had been acclimated to such direct light were growing very hard and compact. Bulbs were shorter but quite fat and husky, leaves light in color and with very heavy leathery texture. Floriferousness, we were told, was excellent, and even difficult crosses were flowered in season.

Cypripedium and Phalaenopsis are grown in our conventional manner, and the number of good quality Cypripedium being grown is not usually known to us

mainlanders. The quality of Mrs. Lester M. McCoy's Phalaenopsis has been recognized for some time. A house full of these beautiful white sprays is quite a sight. Hybridizing in Phalaenopsis seems to be progressing at a rapid pace. The newer pink Phalaenopsis are so much better than we are accustomed to in Phal. schillerana that it would seem to warrant more attention to this one field.

The genera closest to the Hawaiian growers' specialty are the Dendrobiums and Vandas. V. Miss Joaquim is grown in fields by the acre instead of by the bench, and this orchid, named in Hawaii as the "Princess Aloha Flower," has become an important island crop. Harvesting and marketing Vanda flowers employs manu people. The hybrid V. Mevr. L. Velthuis, a cross between terete-leaved V. Miss Joaquim and strap-leaved V. sanderana, is predicted to be a successful new generation of commercial crop orchids. Dendrobium hybrids, in a wide range of colors and improved shape and texture, are grown out of doors in full sunlight and fertilized heavily. This culture produces tremendous growth of pseudobulbs, some as long and fat as baseball bats and carrying many long arching sprays of flowers. Strap-leaved Vanda hybrids have many different methods of culture: the growers are continually experimenting with different potting and composts and with varying degrees of light exposure. So much departure from conventional growing by such a diversion of growers is producing the new culture of the more perfect plant of tomorrow.

Epidendrums of the reed type have hybrids with colors spread through the spectrum and are grown in beds as a garden cut flower. Of the botanicals, Onc. altissimum impresses the visitor the most. This plant is grown in large concrete tubs in full sunlight as huge specimens which develop many thousands of flowers when in bloom. - 1624 25th Avenue, Longview, Washington.

Orchidarium - Hawaii

by Dr. T. David Woo [38]

The people of Hilo, Hawaii take pride in the title "Orchid Capital of the World". Our varied temperature, humidity and elevation provide ideal growing conditions for all genera and species of the orchid family. Witness the fact that every house in the city grows some type of orchid in the backyard. These proliferated and bloom without much attention or care.

It became logical to us that we should have a central site which could be a showcase for all these exotic blossoms so that the public may come and view them with ease. Thus was born the idea of the Orchidarium Hawaii, which is a complete, compact orchid paradise nestled in a landscaped garden atmosphere. Such a creation would be so unique as to be unparallelled anywhere in the world.

To realize this dream, a number of prominent local hobbyists labored hard and long to make this come true. The site chosen was conveniently located at 524 Manono Street. about three blocks south of the luxurious hotels which overlook Hilo Bay. Visitors may easily find this place which is within walking distance from the hotels.

It is small enough to permit a mass array without detracting from each individual exhibit and it is not too large as to be tiresome and repetitious. What has been generated is actually a "Pearl" in the Pacific which is within the reach of anyone on this earth who wished to see it.

For the tourist, we present a breath-taking extravaganza of color and beauty for you to remember long after you return home. The pictures which you take will provide pleasant memories of your visit.

For the public, we offer a complete and continuing orchid show where you may bring your friends, again and again. There will be periodic changes of displays as the seasons bring forth different varieties into bloom.

For the orchid hobbyists, we share with you the fruits of our effort in creating newer hybrids and other interesting genera which usually only a chose few are priviledged to see.

For the real connoisseur, we give you a parade of awarded plants and prize winning specimen, which everyone dreams of but seldom owns in his collection.

For the amateur orchid fan, we have a place where the fundamentals of orchid culture would be demonstrated to you. You will never go wrong with the new modern hybrid seedling that we recommend.

For the orchid fraternity of the world, we welcome an international exchange of cultural relations with you.

The Orchidarium Hawaii is the headquarters of the AOS award judging for the island of Hawaii and is held on the second Friday of every month at 7:30 PM. It is also the headquarters and meeting place of the Hilo Orchid Society. The

beginnings of comprehensive orchid library is also based here.

Brief History of the Orchidarium Hawaii

Hilo is now the second gateway to Hawaii and United and Continental jets land here. To commemorate the inauguration of direct jet flights to Hilo from the West Coast, we staged a Jet Orchid Show on October 1, 1967. There was a preview and reception the evening before where invited guests and local dignitaries were shown through the garden.

The next day dawned bright and clear and with the sounds of jet aircraft overhead, the Mayor of Hilo, the Honorable Shunichi Kimura cut the traditional maile lei that draped across the walkway, symbolizing the grand opening of the Orchidarium Hawaii to the general public. On hand were Miss Aloha Hawaii, officials of the county of Hawaii, Hawaii Island Chamber of Commerce, Japanese Chamber of Commerce, the Hawaii Tribune Herald and officers and members of this new facility for Hilo.

Hilo's Vanda History

Hilo has always been known as the Vanda country. Most famous has been the V. Agnes Joaquim, millions of which have been shipped for floral use. It was all started in Hilo by Mr. L. Bryan who brought two dozen plants from Singapore to Hilo.

The undisputed queen of Vandas is V. sanderana. Takumi Kono has two V. sanderana plants which received FCC's. In September, 1952, at New York AOS judging, V. sanderana #7 var 'Kiliwehi' was awarded an FCC of 98 points. In Florida at the International Orchid Show at Miami (February 1952) a V. sanderana was awarded an FCC. V. sanderana has been used as studs to produce many outstanding Vanda orchids that have been awarded HCC and AM in years past, names like V. Rothschildiana, V. Nellie Morley, V. Judy Miyamoto, V. Onomea, V. Shizue Kanno, V. Jennie Hashimoto, V. Eisensander, V. Ohuohu, V. Janet Kanealii, V. Eisenhower, V. Mabelmae Kamahele.

We support Hilo as the "orchid capital of the world" and extend a aloha to all of you to come and see if we are right or wrong.

524 Manono Street, Hilo, Hawaii 96720

The Genesis of an Orchid Show

by Dr. T. David Woo [39]

It was about six months ago that officials of the Hawaii State Farm Fair approached our Chairman, Wallace Nakamoto about the possibilities for the A.O.S. Regional Judging Center staging an Orchid Show at the Hawaii State Farm Fair in 1983.

The Executive committee for the Honolulu Judging Center met and mulled over the pros and cons of such an adventure, being that an undertaking of this magnitude has never been attempted before. As the idea jelled and the outlook appeared bright enough, a call was made for volunteers and certified judges to come forth and participate.

A series of three meetings were held for the general organization of the selected group and the following criteria were arrived at:

1. That this should be an all Orchid Show, without distraction from other flora exhibits.

2. That the format and theme would present an unusual departure from any previous shows so far staged.

3. That distinctive features be incorporated to create an outstanding show, second to none.

4. That we contact the American Orchid Society to reserve the film, "The Many Worlds of Orchids" as part of the program.

5. That a surprise spectacular be reserved to highlight the grand finale and wrap up the whole Orchid Show.

The services of Mr. Gilman Hu, A.I.A, himself an avid orchid enthusiast, was solicited to spearhead these ideas and to bring them into reality. Without hesitation, this gentleman has exerted unlimited time and energy, as well as his professional talents to its development with the result that all these criteria we had anticipated were accomplished and much more.

Scaled plans of the lay-out and a model for the central focal point were elaborated, as well as the schematics for the whole show complex to be scheduled for the McKinley High School Cafetorium.

An internal theater large enough to accommodate about 100 people was constructed and two canopies to furnish spaces for the plant sales area were erected under two huge and shady trees to create a natural atmosphere for the plants on sale.

With the help of volunteers and members of the A.O.S. several working committees were appointed and an organizational chart of chain-of-command was drawn and posted. All arrangements progressed swiftly and smoothly as the target day arrived.

The FIRST ANNUAL ORCHID EXPO, in conjuction with the Hawaii State Farm

Fair opened auspiciously on July 1, 1983. Under fair skies and balmy weather, the occasion was both festive and impressive. The Dixie Jazz Band created the momemtum, while dignitaries present, including the Lt. Governor and the Mayor of Kauai gave their welcoming speeches and after which the public thronged through the entrance into a dream palace of beautiful orchids galore. A total of 1,322 blooming orchid plants were registered and put on display.

The A.O.S. Certified Judges awarded a total of 5 Awards of Merit, 11 High Class Certificates, 1 Certificate of Cultural Merit, and the Bronze Show Trophy to an outstanding Orchid Display.

In addition, there were numerous trophies and special awards given. The Governor of Hawaii, the Mayors of Honolulu, Hawaii, Kauai, and Maui each gave Hawaiian Koa Calabash Trophies. The Hawaii State Farm Fair gave special dated ceramic plates to the winners of Best in Categories.

Guest judges from the South-west and the Pacific South Regions came to participate. Our own Emeritus Judge, Mr. Masatoshi Miyamoto, came out of retirement to join our panel of judges.

We reserved a morning session for the handicapped to come and view the exhibits by themselves and they were presented with orchid flowers and plants to enjoy.

An ORCHID LEI CONTEST drew 44 entries from all over the State and the exhibit was admired by all. A panel of expert lei judges all recognized as such were asked to judge the leis. These same leis were later used to decorate the graves at the National Cemetery of the Pacific and also at the Arizona Memorial on the day following the lei contest.

The special movie, "The Many Worlds of Orchids" which was commissioned by the American Orchid Society was shown at 2-hours intervals and was well attended.

In addition to whatever accolades that were attributed to the Show, we do have a few superlatives to record.

1. This is a first all-Orchid Expo to be sponsored by the A.O.S. Hawaii Regional Judging Center.

2. We presented the Premiere showing of the film "The Many Worlds of Orchids" in Hawaii.

3. The Orchid Lei Contest was the first such exhibit as part of an Orchid Show.

4. A State-Wide participation as evidenced the Trophies donated by the Governor of Hawaii, the Mayors of Honolulu, Hawaii, Kauai and Maui.

5. A first Orchid Expo of architectural design, according to principals of proportion, perspective, professional display and proper traffic flow pattern all inclusive.

We hope that this First Annual Orchid Expo has set a target pattern for future orchid shows to excel, as regards excellence of display, improved quality

of blooms, attention to public appeal, distinctive theme and staging format.

The American Orchid Society, Hawaii Regional Judging Center is proud to have sponsored this Show and hope that through this opportunity to popularize orchids and to present to the public on the complexity of orchid culture for the various genera which are involved.

1983

PART VI. WORLD ORCHID CONFERENCES

A. First World Orchid Conference; St. Louis, Missouri; October 1954

PROGRAM

FRIDAY, OCTOBER 15, 1954

9:00 a.m. General Meeting -- Regency Room, Chase Hotel.
Presiding Officer, George W. Butterworth, Sr., President, American Orchid Society, Inc.
Invocation, Rev. Elmer E. Maschoff, Pastor, Glendale Lutheran Church.
Greetings from Dr. Edgar Anderson, Director, Missouri Botanical Garden.
Greetings from Mrs. Leland B. Read, President, Orchid Society of Greater St. Louis.
Greetings from George W. Butterworth, Sr.

10:00 a.m. First Session -- "What is a Fine Orchid?" -- Regency Room, Chase Hotel.
Introductory remarks by Moderator, G. Robert Lowry, Orchidologist, Missouri Botanical Garden.
"What is a Good Cattleya?" by Robert M. Scully, Miami, Florida.
"What Makes a Beautiful Cymbidium?" by Ira Haupt, New York, N.Y.
"Merits and Demerits in Cympripediums" by Mrs. L. Sherman Adams, Wellesley, Mass.
* "What is a Good Vanda?" by Takumi Kono, Hilo, Hawaii.
"The Qualities of a Fine Odontoglossum" by Maurice Lecoufle, Boissy-St. Leger, France.
"What Makes a Fine Miltonia?" by Gordon M. Hoyt, Seattle Heights, Washington.
* "What is a Fine Dendrobium?" by Masatoshi Miyamoto, Honolulu, Hawaii.
"How Can Botanicals be Judged?" by John B. Lager, Summit, N.J.
General Discussion by the entire session.

12:30 p.m. Lunch (unscheduled)

2:00 p.m. Orchid Exhibition at Missouri Botanical Garden, Main Gate, Tower Grove and Flora Avenues, St. Louis, Missouri.
A Special Shuttle Bus will operate between the Chase Hotel and the Garden, running approximately every twenty minutes from 1:45 p.m., last bus returning from the Garden at 5:00 p.m.
Your transportation ticket will be ood for a round trip passage.

6:00 p.m. Dinner (unscheduled)

8:00 p.m. Symposium: "Recent Advances in Orchid Knowledge" -- Regency Room, Chase Hote.
Introduction by Dr. Herman R. Sweet, Professor of Microbiology, Tufts College, Medford, Massachusetts.
"Pure Research and Its Application" by John T. Curtis, Professor of Botany, University of Wisconsin.
"New Developments in Growing Methods and Equipment" by Dr. O. Wesley Davidson, Professor of Ornamental Horticulture, Rutgers University.

A. *First World Orchid Conference; St. Louis, Missouri; October 1954*

"Orchid Disorders, with Special Reference to Virus Diseases" by Dr. D. D. Jensen, Associate Professor of Entomology, University of California.

What is a Good Vanda?

by Takumi Kono [40]
Hilo, Hawaii

Vanda growers today are experiencing many pleasant surprises as flowers from new hybrids are coming into bloom. Of recent new flowers, V. Nellie Morley (V. Emma van Deventer x V. sanderiana) and V. Jennie Hashimoto (V. sanderiana x V. Onomea) are remarkably pleasing and highly desired. The same can be said of the numerous remakes of previous crosses and species such as V. Rothschildiana (V. sanderiana x V. coerulea), V. Onomea (V. Rothschildiana x V. sanderiana), V. Ohuohu (V. Clara Fisher x V. sanderiana), V. sanderiana and many others. A month seldom goes by without someone flowering a Vanda with improved qualities. Qualities that make Vanda flowers better over the others, within species or varieties, are many. Thus far, no one flower carries all the qualities desired by a discriminating orchid grower. Most flowers carry single or multiple qualities that an orchidist seems to like. It is surely Nature's way of making one flower different from another.

To an average layman most Vanda flowers are beautiful, and he will perhaps hold the flowers with highest esteem. However, a seasoned grower who has become rather discriminating in his selection of flowers will see very few good flowers within the whole realm of Vandas.

Now this brings the question, "What is a good Vanda?" We will endeavor to point out several qualities desired in Vandas as two groups of people would like to see them. First, we will take the florists' standpoint and mention a few desired qualities.

1. For the trade, a florist likes flowers with standard coloration within a cross and purchasable in quantity.

2. He likes a dual purpose flower; one that can be used in an arrangement complete with spike, and/or individually used in the make-up of a corsage.

3. For him it is easier to move Vandas whose colors will fit into a wide range of color and material background.

4. For the trade, he demands flowers of fairly good lasting quality. Lasting quality is oftentimes correlated with substance, but not so in all cases.

5. He will be satisfied with flowers three to four inches in diameter.

6. A florist is not much concerned with overlapped petals and sepals as a growers of exhibition plants would be. If anything, he would much rather have flowers with curled petals and sepals with quite a bit of open space between the sepals and petals. It is not at all surprising to come across statements in orchid writings which speak well of the open formation in flowers.

7. To stay in business, he would like to have available for his purchase two or three standard varieties of flowers the year round.

8. He desires flowers produced on long spikes, with individual blooms well spaced one from the other. This condition in flowering helps to produce true-shaped flowers rather than misshaped ones as in the case of crowded flowering.

We are not lacking Vandas with the aforementioned qualities. In our opinion a few good Vandas for the florists' trade are V. Clara Shipman Fisher, V. Tatzeri, V. Rothschildiana and V. Nellie Morley.

With the grower group from which a large percentage of orchidists participate in orchid shows throughout the world, the following will constitute good qualities in Vandas: 1, color - extraordinary hues, pure white, and dark and distinct; 2, large size within species or variety; 3, conformation - round, close or overlapped sepals and petals, and flat; and 4, with good texture.

Let me elaborate on these qualities:

1. As one sees flower from afar, two conditions will register in his mind. One is the color of the flower, and the other is the size of the flower. As to the first, we like colors that are dark and distinct. Whether the flower is multicolored flower like Vanda sanderiana, or a unicolored flower like Vanda coerulea, people seem to prefer the vividly colored flowers in the respective species, other conditions being about equal. Pure white in strap-leaved Vandas is yet to come. It, no doubt, will be a Vanda much in demand.

As we see a flower from a short distance, many other details of the flower become noticeable. At a closer look, color becomes more interesting and we begin to weigh and compare Vandas on the basis of color. Most people will like the dark, rich and distinct colors. We might mention a few other Vandas noted for their color beauty. These are V. Rose Davis, V. Lynne Sugihara, V. Manila and V. Bill Sutton.

Most of the V. Rose Davis and V. Lynne Sugihara seen thus far are beautiful blues. Other conditions being equal, we consider these as being good flowers if the blue is dark, clear and true. V. Manila and V. Bill Sutton are considered good if their color is of a bright pink rather than brownish pink.

2. As to size of Vanda flowers, we like to see a flower which is larger than the average flower in the same species or cross. Just where the top limit in size is to be, no one knows. Surely we do not want a Vanda twelve inches in diameter. Not right now, anyway. We are not prepared for the shock of seeing a twelve-inch Vanda flower. We are accustomed to seeing V. Rothschildiana measuring 5-1/2" in diameter. One V. Lynne Sugihara measured 5" across. We have read an orchid article mentioning a semi-terete Vanda measuring seven inches across.

Some flowers with good size and carriage are: V. Rothschildiana, V. Lynne Sugihara, V. sanderiana, V. Rose Davis, V. Ohuohu, V. coerulea, V. Velthuis, V. Nellie Morley and perhaps a few others which I have not seen at their biggest. These flowers normally range from 4-1/2" to 5-1/4" across.

3. Good confirmation, if it includes roundness, closely formed or overlapped sepals and petals, and flatness of flower, seems to be the most important consideration in breeding orchids. Regardless of size or color of

flower, a grower will most often choose good confirmation as the first quality to transmit in Vanda breeding.

A flower is round when the sepals and lateral petals are equal in length. The point of attachment at the base of these sepals and petals will then be the center of the flower.

An off-centered flower occurs when the dorsal sepal is shorter than the ventral sepals. A long flower occurs when the lateral are much shorter than the three sepals. The latter two conditions are less preferred by growers of exhibition plants than the first.

Closely formed or overlapped sepals and petals are qualities most desired. To a trained eye, these qualities appeal even more than color or size. Of special note are V. sanderiana #15, AM, V. sanderiana #8, FCC, and V. sanderiana #7 'Kiliwehi,' FCC. When properly grown these flowers are extremely overlapped and not a speck of daylight shows between flower parts.

Flatness enhances size and shape of flowers. Although flatness is a desired quality, if this condition is similar to cardboard flatness, the flower loses character and becomes uninteresting. There should be some bends and curvatures on the margins of petals and sepals.

4. Good texture combined with good color, good size, round and flat appearance, and overlapped condition of petals and sepals, will make an ideal exhibition Vanda. Good texture will give body and character to a flower. It also correlates with lasting quality which is important if a grower participates in distant orchid shows where cut flowers are the best means of showing.

There are cultural as well as hidden factors which contribute to the production of desirable and high quality Vanda flowers. Some of the more important factors are: an understanding of plant breeding, prevention and control of plant diseases and insect pests, and providing the best growing conditions to plants.

I hope that what I have said on "What is a Good Vanda?" will be given critical appraisal and if I have said anything seriously wrong, I beg that you will be kind enough to give me advice for correction. My statements have been influenced by my own likes and dislikes. I have only my meager experiences and observations as a grower to stand behind my statements. -- 227 Kaumana Road, Hilo, Hawaii.

PROGRAM: SEPTEMBER 19-23, 1957

Thursday, September 19, 1957

ALOHA PARTY for registrants to the Orchid Conference
5:00 pm to 7:00 pm -- Reef Hotel Pool Lanai

ORCHID SHOW PREVIEW for registrants to the Orchid Conference
7:00 pm to 11:00 pm -- Honolulu Academy of Arts

Friday, September 20, 1957

BAND CONCERT
8:45 am to 9:10 am -- The Royal Hawaiian Band, Kaiser Dome in the Hawaiian Village

OPENING CEREMONIES
9:10 am to 10:00 am - Kaiser Dome, Hawaiian Village
Presiding Officer: H. Chadsey Penhallow, General Chairman of the Joint Planning Committee, Second World Orchid Conference
Invocation - Rev. Masao Yamada
Welcome by the Honorable William F. Quinn, Governor of Hawaii
Welcome by the Honorable Neal S. Blaisdell, Mayor of Honolulu
Aloha from the sponsoring organizations
The University of Hawaii, Dr. Willard Wilson, Acting President
The American Orchid Society, Inc., Frank J. Lind, President
The Hawaiian Orchid Societies, Inc., Rev. Masao Yamada, President
Official introduction of registrants from foreign countries

INTERMISSION
10:00 am to 10:15 am

INTRODUCING HAWAII
10:15 am to 11:30 am -- Kaiser Dome, Hawaiian Village
Moderator: Dr. Leonard Baver, Director, Hawaiian Sugar Planters' Association Experiment Station, Honolulu
The Climates of Hawaii -- Dr. David Bluemenstock, Honolulu, Hawaii. Weather Bureau, Department of Commerce, Climatologist
Growers, Orchids and Climates Cooperate -- Dr. Walter C. Carter, Honolulu, Hawaii. Senior Scientist and Entomologist, Pineapple Research Institute: Editor, Bulletin of the Pacific Orchid Society of Hawaii

DENDROBIUM SESSION
2:00 pm to 3:30 pm -- Kaiser Dome, Hawaiian Village
Moderator: George H. Pring, St. Louis, Missouri. Superintendent, Missouri Botanical Garden
Dendrobiums of the Pacific -- Dr. Trevor E. Hunt, Brisbane, Australia. Past President of the Queensland Naturalists' Club and Member Royal Society (Q)
Dendrobium for Cut-Flower Use -- Masatoshi Miyamoto, Honolulu, Hawaii. Commercial Orchid Grower.
Preliminary Investigation of the Cytogenics od Dendrobium -- Kazuo

Kosaki, Honolulu, Hawaii. University of Hawaii, Research Assistant

Preface

by Gordon W. Dillon [41]

Pioneering in any field is both a challenge and an opportunity, but every pioneer who successfully bears his burden of responsibilities reaps a harvest of satisfactions. So it is now, in the publication of these Proceedings, for those Committees and individuals who bore the responsibilities of planning and conducting the Second World Orchid Conference. It has been real pioneering, with little precedence - except success - from the First World Orchid Conference in St. Louis in 1954. It has been pioneering because the World Orchid Conference is rather unique in being neither a scientific organization nor a trade association, neither a commercial corporation nor a fraternal order, nor a religious, social or political body - in fact, it is not a body at all, but rather an idea, an assemblage brought together by intangible bonds of common interest that entangle all who succumb to the lure and the lore of orchids. This subtle tie is tenacious and all-embracing, binding together grocery clerks and bank presidents, housewives and scientists, hobbyists and professional growers, all who grow, study, sell, buy, collect, paint or photograph orchids. This bond permeates national boundaries and barriers of race, creed or religion, uniting into one world all who love orchids and want to know more about them.

This, then, is the base upon which the program of the Second World Orchid Conference was founded - the desire that all facets of orchid interest represented in all corners of the glove be available to all who could and would attend. The result was a series of seventeen separate sessions presenting more than seventy-five speakers, moderators and demonstrators, all of which provided not only a great mass of information, but considerable entertainment and inspiration for the nearly one thousand Registrants who attended. That not all countries were represented must be regretted, and it must be recognized that not all problems of orchidology were solved nor even considered. Yet this regret and this recognition, though sobering, carry the somewhat cheering realization that additional World Orchid Conferences are needed and the Third is, in fact, in prospect.

In presenting this volume to our readers, we must admit that the printed Proceedings can capture only the bones and muscle of the Conference - the life, the warmth, the spirit that made the Second World Orchid Conference in Hawaii so impressive must be sought in the hearts and memories of those who attended. For such individuals, these Proceedings will be lasting excitements to memory as well as permanent references of facts. For the unfortunates who did not attend, these Proceedings will provide to the fullest possible extent the verbal material presented during the program, i.e., all talks in full (except two as noted) and a clear summary of meetings and actions taken. The visual material, irrespective of Hawaii's colorful vistas and floral beauty, could not be included for several reasons, the chief being the prohibitive cost of reproducing in color the hundreds of color slides projected for illustrative purposes by most of the speakers. Also omitted, for obvious reasons, were the personal demonstrations, the florists' clinic, the fashion show, the motion pictures, and the entertainment in song and music. In compensation, however, the complete papers are published, even in those instances when, during the Conference, lack of time compelled the speaker to deliver a summary or condensation of his talk.

Editorial work has been focused as much as possible on correctness of facts rather than manner of expression. We believe that the best interests of internationalism are served by permitting speakers to express themselves in their own idiom, not stereotyping their expression in an editorial mould. We did insist, however, that as a Conference of international stature, the record of it should follow present methods of international nomenclature, even though unsatisfactory in many ways to editors and readers alike. Using internationally established terminology will, if nothing else, provide readers with demonstrable proof of the need for interest and action in the field of orchid nomenclature.

One final word. The Second World Orchid Conference was conducted in English and is so recorded in the Proceedings, but this was dictated by present necessity, not by ignorance of the tremendous contributions that could have been made by the non-English-speaking orchidists. Perhaps it is not too utopian to foresee the time when World Orchid Conferences and their Proceedings will be multilingual. Realization that future editors will need skill in French, German, Spanish, Portuguese, Italian, Japanese, Russian, as well as English, to name but a few prospective tongues, makes us doubly happy that our own labors have ended with the publication of this volume.

Foreword to Program

by H. Chadsey Penhallow [42]

The First World Orchid Conference held at St. Louis, Missouri, in 1954, started what we hope will develop into a vehicle for better understanding, improved communication and greater exchange of information and materials among orchidists all over the world. It is indeed a great honor for those of us in Hawaii to have the privilege of being your hosts for the Second World Orchid Conference.

The unexpected death of Dr. Beaumont, former General Chairman of the Joint Planning Committee, was a profound shock to all of us, but the legacy of good will, friendly cooperation and strong committee organization which he left behind has made our task an easier one.

On behalf of the Joint Planning Committee, I wish to take this opportunity of expressing my deep appreciation for the unremitting interest, the unselfish assistance, and the efficient accomplishment of their assignments which has characterized all those associated with this conference and its orchid show.

John Herbert Beaumont, 1894–1957 [43]

This volume is dedicated to the memory of Dr. John Herbert Beaumont, former general chairman of the Joint Planning Committee of the Second World Orchid Conference and president of the Hawaiian Orchid Societies, Inc., who passed away on July 16, 1957.

Dr. Beaumont's interest in orchids and orchid growers was largely instrumental in bringing the Second World Orchid Conference to Hawaii. He played a prominent part in organizing and coordinating the many volunteer committees necessary for such an undertaking and his gifted leadership ensured their happy and enthusiastic functioning.

As senior professor of horticulture at the University of Hawaii and head of the Department of Horticulture at the Hawaii Agricultural Experiment Station, Dr. Beaumont contributed much to the agricultural progress of the Territory of Hawaii, and his warm heart and generous presence will be greatly missed by his many friends and associates.

Editorial [44]

The Second World Orchid Conference is now a matter of history. The Conference attracted about 1,000 registrants, and over 15,000 people visited the show at which 1,838 plants were exhibited by 146 exhibitors plus 17 cut flower exhibits and a bewildering display of corsages. But the statistics, while gratifying, tell only a small part of the story. It was, without doubt, a truly international conference, with representatives from all parts of the world. These visitors were distinguished persons, competent to represent and speak on their specialized fields of interest, and their presence brought lustre and rare companionship to the conference proceedings.

The program was an extremely full one with many concurrent sessions so that it was impossible for any one person to attend all the sessions. The remarkable thing was the manner in which the sessions were attended. In spite of all the outside attractions of a tourist mecca, attendance was kept up, even to the last business meeting!!!

Many problems, particularly those concerned with registration of hybrids, were freely discussed, and while nothing was finally settled, the basis for amicable solution was arrived at. Clearly, the problem is one for international action, to be settled within the framework of existing horticultural and botanical congresses but with due regard for the needs of commercial and amateur hybridizers whose sole interest is the naming of new hybrids.

The show was simply fabulous. Surely nowhere else in the world could such massed beauty ever be seen. Even for the locals the show was a revelation of what could be done by an all-island cooperative effort. The visitors were overwhelmed. The illustrations in this issue are almost exclusively those of award winning plants.

Finally, a word of congratulations to the hundreds of people who contributed in one way or another to the success of the conference. Well done!

Organization of the Joint Planning Committee[45]

General Chairman: H. Chadsey Penhallow
Vice Chairman: Dr. Shosuke Goto
Secretary: Makoto Takahashi
Treasurer: Oscar M. Kirsch

Sponsoring Institutions, Cooperating Agencies and Operating Committees of the Joint Planning Committee

Hawaiian Orchid Societies, Inc.
- Ah Hong Chee
- William Kirch
- Oscar M. Kirsch
- Ben Kodama
- Wallace H. Otaguro
- Masatoshi Miyamoto
- R. Miyoshi
- H. Chadsey Penhallow
- Herbert C. Shipman
- Makoto Takahashi
- J. Milton Warne
- Rev. M. Yamada

University of Hawaii Committee
- Ernest K. Akamine
- Dr. Henry A. Bess
- Y. Baron Goto (Honorary)
- Dr. Shosuke Goto
- Dr. Mamoru Ishi
- Dr. Haruyuki Kamemoto
- Dr. Morton M. Rosenburg (Honarary)
- Makoto Takahashi
- Fortunato Teho
- Dr. Leonard D. Tuthill
- Dean Harold A. Wadsworth (Honarary)
- Dr. Willard Wilson (Honarary)

Trade Wind Tours
(Coorperating Agency)
- Mrs. Mary Jane Maples
- John S. Pugh

American Orchid Society
- Gordon W. Dillon

Impressions of the Second World Orchid Conference

by R. L. McLellan [46]

The Hawaiian Islands has a world wide reputation for charm, beauty and great hospitality. The Second World Orchid Conference proved to the many orchid enthusiasts that came from the world over that this is the case. The well attended meetings and the literally thousands of visits to the orchid collections proved to me that the entire Conference was handled superbly.

There was not task too large, not any interest too small to receive the fullest attention of the local committee and their friends, who always accomplished these tasks with smiling dispatch. It is to the local group, of course, that the credit goes, for the lack of a close-knit world organization (if any organization at all) made it impossible for much help to come from the world wide organization. I think there was an intelligent local underlying knowledge of what people like when they come to the Islands.

There is one man outside of the local committee whom I must mention, who did contribute most substantially to the grand success of the Second World Orchid Conference, and that is Mr. Gordon Dillon, Secretary of the American Orchid Society for his continual prodding to get the Conference rolling. This was in itself a job very well done.

To the Flower Show Committee, who staged the largest and most complete orchid show ever staged in the world, must go the appreciation of all who attended, as well as the local orchidist for the orchids of Hawaii were so grandly displayed.

It speaks so well for the individual orchid grower, who gave so much of his time, so many of his plants and flowers.

I could go on and enumerate how well each additional item was done, such as the program, the accommodations, the tour information, the meeting places, the entertainment, the receptions and so forth - for everyone should be complimented that had anything to do with the Orchid Conference. Generally, it has been acclaimed by those to whom I talked the most successful meeting that they have ever attended.

The Second World Orchid Conference has set a standard that will make "a must" for all to attend the next conference, but can it ever be done as well again?

CENTRAL COMMITTEE

Chairman	J. MILTON WARNE
Program Chairman	BENJAMIN KODAMA
Show Chairman	MASATOSHI MIYAMOTO
Registration Co-Chairman	CLARENCE MILLER, EDWARD ROWOLD
Banquet Chairman	JOHN NOA
Treasurer	ROBERT WARNE
Publicity	CHADSEY PENHALLOW

Council of Presidents of Sponsoring Orchid Societies:

Aiea Orchid Club: Edward Wong
Ewa Orchid Society: Harold Kushima
Honolulu Orchid Society: Benjamin Kodama
Kunia Orchid Society: Marcus Aton
Pacific Orchid Society: Robert Kennedy
Wahiawa Orchid Society: Kenneth Kawamura
Waianae Orchid Society: Jack Yoshimura
Waipahu Orchid Society: Thomas Takiguchi
Windward Orchid Society: John Noa

2nd HAWAIIAN ORCHID CONFERENCE PROGRAM

Agee Hall
Hawaiian Sugar Planters Association Experiment Station Auditorium
October 23, 1959 -- 7:30 p.m.

7:30 P.M. INVOCATION -- REV. MASAO YAMADA
GREETINGS BY THE GOVERNOR OF HAWAII
GREETINGS BY THE MAYOR OF HONOLULU
GREETINGS BY MR. FERGUSON BEALL, Executive Vice President of the American Orchid Society
MAIN SPEAKER: MR. FERGUSON BEALL "Economic Outlook of Orchids on the Mainland."
GREETINGS BY MR. MILTON WARNE, 2nd Hawaiian Orchid Conference Chairman
GREETINGS BY REV. MASAO YAMADA, President of the Hawaiian Orchid Societies, Inc.
BUSINESS MEETING

8:30 P.M. DR. HARUYUKI KAMEMOTO "Recent Research of Cytogenetic of Orchids at the University of Hawaii."

9:00 P.M. PANEL DISCUSSION ON "New Advances in Orchid Breeding."
MODERATOR WILL BE MR. OSCAR KIRSCH.
Members on the panel discussion will be:
MR. WILLIAM FARRELL -- Cattleya
MR. MASATOSHI MIYAMOTO -- Dendrobium
MR. HAYATO TANAKA -- Vanda
MR. W. W. MOIR -- Unusual Bi-Generic Hybrids

QUESTION AND ANSWER PERIOD WILL FOLLOW DISCUSSION

The Objectives of Our Orchid Conference

by J. Milton Warne [47]

As we in Hawaii get together for our second orchid Conference, we might well think over the aims and purposes of our efforts. When more than a thousand people join together in any effort there must be something that draws their attention and interest. That something in this case is our mutual love of orchids.

Our basic purpose is to advance orchidology: to show the developments to date and to encourage everybody to go on with new ideas to create new and beautiful orchids for the future. Our Conference gives us a chance to see what others are doing and to exchange ides with one and all. No one grower can ever hope to know everything about orchids because the field is so large and complex, but by sharing ideas we can develop a greater common knowledge. This common knowledge increases year by year and builds a stronger foundation for every hobbyist and breeder in the Islands.

Hawaii has come a long way in a short quarter of a century. Then there were no Orchid Societies in the Islands; now there is a Society in nearly every community. Then the first pioneer commercial growers had only a few hundred plants each; now there may be more orchid plants exported from Hawaii in one year than were grown in all our collections combined at that time. Then the first Hawaiian hybrids were growing up with one or two crosses a year; now there are hundreds each year. Then Hawaii was unknown in the orchid world; now Hawaii is recognized worldwide as a center in orchidology and in orchid production and export.

Such development has been because of the work of a great many people, some growing purely for pleasure, others for scientific interest, and others for a livelihood. Looking toward the future we can see new and greater possibilities. Also the worldwide competition is sure to increase. We need now to bring our many efforts as individuals closer together so that our combined knowledge and ability can keep Hawaii a real leader in the Orchid World. In this Union is or Strength.

Cattleya Stud Plants

by Rev. Masao Yamada [48]

The renewed public interest in Cattleya and allied genera in recent months has stimulated the amateur and commercial growers to collect award plants and stud plants for breeding purposes. It is impossible to list all the great Cattleya stud plants used to-date. The short list presented here includes plants found locally in the state of Hawaii.

The selections are based on two guiding principles; a) plants that have produced award winners considered valuable for stud work and b) plants that have been determined as tetraploids by recognized cytogeneticists. In addition, the list includes plants considered in the accumulated experience of hybridizers as worthy stud plants.

1. THE WHITE (ALL WHITE) GROUP:
Species: C. trianae v. Broomhill, C. mossiae v. Wagneri, C. labiata v. Harefield Hall, C. loddigesii Stanley's var., C. intermedia Alba.
Others: C. Bob Betts, C. Bow Bells (either Hon. self or Tetraploid variety), C. Estelle Alba v. Cynosure.

2. WHITE WITH COLORED LIP:
Species: C. labiata v. Charlesworthii, C. mossiae Reineckiana, Young's var., C. trianae var. Coeruleances. (Good for use with colored lip)
Others: C. Ardmore (tetraploid), Lc. Cynthia, Blc. Nanette (Tetraploid variety will produce some superior colored-lip types along with lavenders).

3. YELLOW GROUP:
Species: C. dowiana Aurea, L. flava., L. aurantiaca
Others: C. hardyana v. Clement Moore, Lc. S. J. Bracey (Tetraploid types such as v. Hoshino or Mitsunaga), Lc. Thebes v. Bronze King or v. Majestica, Lc. Grandee v. Jules Furthman, Blc. Malvern v. Grace., Blc. Ermine AM. AOS.

4. PURPLE GROUP:
Species: C. bowringiana (selected diploid variety), C. labiata v. Goliath, C. mossiae (Selected type), C. trianae v. AC Burrage, C. trianae v. Clement Moore (splash on petals), C. trianae v. The President).
Others: C. Enid v. Orchidhaven, C. Ted Trimble (Tetraploid), C. Dinah, AM RHS, Lc. Princess Margaret FCC, Lc. Helen Wilmer v. Lines, Lc. Pasadena (Tetraploid), Lc. Windemere v. Clovelley, Lc. Ardentissima, Lc. Bocono, C. Isabel Sanders v. Majestica, Lc. Tityus v. Patriach, Lc. Supervia v. Hoshino, Lc. Mysedo v. Miya, Lc. Molley Tyler FCC, Lc. Bonanza (tetraploid types), Bc. Hartland, Blc. Wendel Hoshino v. Hoshino, Blc. Wake Island v. the Queen, Blc. Frank Tatsumura (tetraploid types), Blc. Norman's Bay v. Stuart Low or other tetraploid types.

Most of the above listed are tetraploids or diploids. Some of the well know award winners such as Lc. Mem. HC Alexander FCC RHS, Lc. Frank Lind, Lc. Snowdrift, C. bowringiana v. Splendens, C. Rembrandt v. Tenney are not listed because of their triploid or anueploid make-up. If you are able to assemble species in the above list, you will be a happy owner of an outstanding collection in any country.

Guide to Dendrobium Collecting

by Masatoshi Miyamoto [49]

It is only natural that a genus as large as the Dendrobium family with approximately 900 species and many hundreds of interspecific hybrids, cannot be fully covered in an article of this nature. The "cane type" Dendrobiums have been selected for discussion in this article.

Because of the wide range of species and hybrids that are available, the collector has a better opportunity to acquire the more desirable types which he intends to specialize in. He may want to use Dendrobiums for a variety of uses, such as for exhibition, cut flowers, landscaping or in the acquisition of a collection of botanicals.

For exhibition purposes it is practical to select only such species or hybrids that have the potential of producing the high quality of flower necessary. A plant should be selected with emphasis on quality of color, shape, size and formation of flowers on sprays. Some of the other characteristics necessary for other purposes may be disregarded.

A few examples which have won awards include, Den. taurinum, Den. schulleri, Den. Janice Tanaka, Den. May Neal, Den. Ethel Kawamoto, Den. Esther Moriguchi, Den. Diamond Head Beauty, Den. Lady Hamilton, Den. Anouk, Den. Waikiki Beauty, Den. American Beauty, Den. Ewa, etc.

On the other hand, when considering plants for cut flower production, the emphasis on quality differs considerably from that of the exhibition type. The following qualities should be considered; profusion of blooms, that is, the number of sprays produced throughout the year, lasting quality after the spray has been cut, vigor of plant growth, pleasing and clear colors. The following are some of the hybrids considered to be the most desirable from the standpoint of prolific blooming quality, Den. Hawaii, Den. Neo-Hawaii, Den. Pauline, Den. Louis Bleriot and Den. Jaquelyn Thomas.

Unfortunately the desirable qualities of the exhibition and cut flower types are difficult to combine but it is the hope of all the hybridizers that some day this may be possible.

Many of the cut flower type hybrids can well be used in landscaping, depending of course, on the area they are to be used in. Others are better for landscaping, especially when large and vigorous plants are required. This landscaping group is more commonly called the ever-growing type because of its continuous growth characteristic which is very desirable for outside planting. Their numerous sprays make them very attractive in gardens and homes. Readily available plants include Den. gouldii, Den. undulatum, Den. veratrifolium, Den. schulleri, Den. stratiotes and its varieties and hybrids such as Lum Goo, Salak, Sunda Island and Yellow Jacket.

Warm Climate Miltonias

by J. Milton Warne [50]

The warm climate Miltonias could be called the newest fad in Hawaiian orchid-growing, since their popularity has jumped very rapidly during the past year or two. Their story, however, goes back thirty years or more to a day when a visiting ship captain presented a plant of Milt. bluntii to Dr. Yoshimura for his fine orchid collection at Hilo. The identify of the plant was then unknown. For some years after the writer got his first Milt. bluntii in 1931, it was called Onc. X. It was finally identified correctly with the aid of some old orchid books.

During the latter part of the nineteen thirties, several other species were introduced to Hawaii. These included, Milt. spectabilis and its variety Milt. morelliana, Milt. clowesii, Milt. warscewiczii, and others. Hybridizing did not begin until after the war, but in recent years a number of beautiful crosses have appeared. Best known of these are Milt. Gayety and Milt. Goodale Moir x Milt. William Kirch, and Milt. Anne Warne x Milt. Milton Warne. This last name plant is the only one of the group which has won an award so far. In 1958 Milt. Anne Warne variety Alii won an award of Merit (A.O.S.) in Florida.

The warm climate Miltonias are well suited to garden culture in Hawaii. Give them quite a shady and breezy location where the air is moist and fresh. Plant them on hapuu slabs or trees or in porous compost so that they can be watered every day. Aim for a situation that would suit Cypripediums, excepting for the compost. Flowering season is throughout the summer months. When a large clump is seen on stump beneath the shade of tree ferns it is a glorious sight.

There are many possibilities in hybridizing Miltonias. Crosses within the group are easy, but seed pods are very hard to get when crossed with the pansy type of Miltonia. Crosses are possible with the Oncidiums, one of which, Milt. Lee Hirsch made by Mr. Gamble in California has an AOS award. Recently, Goodale Moir has shown some very pretty crosses made with the Brassias. With such wide possibilities, we can only guess what the future will bring, but you can be sure of many new and beautiful orchids.

New Concepts in Phalaenopsis Breeding

by Ben Kodama [51]

Of the 70 known species of Phalaenopsis, the most important ones used in modern day breeding have been obtained from the Philippines and Borneo.

Interest in the production of new Phalaenopsis hybrids in Hawaii has grown particularly during the past five years. Previously this genus was not very popular among breeders because of their small size, poor shape, poor substance and poor lasting quality. Almost overnight, however, fine examples of Phalaenopsis began to appear at orchid shows and orchid meetings. This was due to the introduction of new hybrids using the superior Phal. Doris (Phal. Elisabethae x Phal. Katherine Sieqwart) as a parent. Phal. Doris today is considered to be the "Queen of Phalaenopsis" comparable to our V. sanderana, the "Queen of the Vanda."

Some of the superior whites produced from Phal. Doris and its hybrids are: Phal. Vallemar, Phal. Grace Palm, Phal. Dos Pueblos, Phal. Pacifica, Phal. Pasadena, Phal. Juanita, Goleta, Palm Beach and Phal. Margaret Bean. These superior flowers have found a ready sale in the flower markets throughout the West Coast in corsages, as cut flowers and promotional flowers.

Phal. equestris commonly known as Phal. rosea, also introduced new life to Phalaenopsis breeding. Mr. Oscar Kirsch crossed Phal. Paukea with Phal. rosea to produce a lovely hybrid with a red lip which was later named Phal. Sally Lowrey. The latter has been used extensively on the West Coast especially by Mr. Herbert Hager to produce such hybrids as Phal. Judy Karleen (Phal. Sally Lowrey x Phal. Chieftan). Another good cross made recently using Phal. Sally Lowrey is Phal. Overture (Phal. Winged Victory x Phal. Sally Lowrey). Also, Mr. Lewis Vaughn of Florida produced a new hybrid, Phal. Rosy Pam (Phal. rosea x Phal. Pamela) with many dark lipped flowers among it progeny.

Perhaps the best known of the pink hybrids is Phal. Clara Knights (Phal. Doris x Phal. Marmouset). The writer saw many fine Phal. Clara Knights at the Albert & Merkel Bros., Inc. nursery at Boynton Beach, Florida in 1957. These included Phal. Clara Knights var. Judith and Phal. Clara Knights var. Karen both award-winning plants. Other fine pinks are Phal. Leah, and Phal. Judith (Phal. Pink Glory x Phal. Doris). Hawaii has produced many exceptionally good pinks such as Phal. Alice Bowen (Phal. Dark Hawaii x Phal. Pink Cloud) by Mrs. Lester McCoy Orchids.

Perhaps the most notable color improvement made in Phalaenopsis breeding is due to the recent hybrids made from Phal. mannii which was introduced from Assam. This is a very small yellow species with heavy brown barred markings. Mr. Lewis Vaughn of Florida crossed it with Phal. Doris to produce the hybrid Phal. Golden Louis. The flower had a spread of about two and a half inches with a beautiful golden color. Subsequently he made another cross of Phal. mannii with Phal. Chieftan to produce another golden colored flower which he registered as Phal. Golden Chief. Mr. Keith Shaffer of Santa Cruz used Phal. mannii with Phal. Grace Palm to produce Phal. Golden Palm. This introduction of an entirely new color has opened up new horizons in the breeding of Phalaenopsis.

Phal. lueddemanniana has also been used successfully in present day breeding. Among the recent hybrids using Phal. lueddemanniana as a parent are Phal. Nuel N. Songer (Phal. Doris x Phal. lueddemanniana); Phal. Texas Star (Phal. Evening Star x Phal. lueddemanniana) and Phal. Star of Rio (Phal. Bataan x Phal. lueddemanniana). Phal. lueddemanniana also added considerable improvement to the substance of the flower. Among the many forms of Phal. lueddemanniana which can be used to produce new color varieties are the var. ochracea, var. pulchra and var. purpurea.

Jones and Scully of Florida have shown a new hybrid called Phal. Moonglow (Phal. sumatrana x Phal. springtime). This has a pale flower, ranging in color from light yellow to near white with a lavender lip edged with white. Phal. sumatrana is a species from Sumatra, Borneo and Malaya.

Other Phalaenopsis species which are being used for breeding are Phal. amboinensis and Phal. violacea.

Thus the reader will realize that although the field of Phalaenopsis breeding is a new one, it offers a wide open field for anyone who is interested in producing new colors and new creations.

Cypripedium Culture

by Henrietta S. Fujiwara [52]

Growing Cypripediums in Hawaii is relatively easy. We have a few more problems than the mainland or English growers who grow their plants in controlled temperature glass houses. Some of the Hawaiian orchidists grow them in screened houses with glass or fiber glass roofs, in lath houses or under trees. No attempt is made to control temperature or humidity. We take the weather as it comes and the Cypripedium plants seem to adjust themselves to our climatic conditions very well. Our biggest problems include red spider infestation, bacterial rot, fungus infections and leaf virus. Due to our year round fair weather we must watch for these conditions constantly. Thus regular spraying and feeding is necessary to keep our problems to a minimum.

There are as many potting media being used to grow Cypripediums as there are growers. In any case the most important thing to remember is to have good drainage. Some of the potting media used are osmunda, fir-bark, peat moss mixture and tree fern fiber. Our own media includes one part peat moss, one part leaf mold, one part washed beach sand and two parts fine screened tree fern fiber.

The mottled leaf and the green leaf types bloom well for us in the same location. In the past four months our Cypripediums were temporarily placed in a house with more light than necessary. It was therefore a great surprise to see how much light these plants actually were able to tolerate. The whites are now beginning to bloom under these conditions while the others are beginning to put out their sheaths. The mottled leaf or warm growing types have lost their intense coloring but otherwise they are doing very well. Later, they will be moved into their permanent house which is more shaded and a little cooler. Cyps take a good deal more watering than other genera and should not be allowed to dry out. On the other hand, neither should they be drowned.

Our cultural program includes spraying with Malathion or Isotox, 5 cc to one gallon in a Hayes spray gun, about once a month as a general insecticide. Tersan, a fungicide, 1 teaspoon to a gallon is used in between. Agrimycin is used whenever bacterial infection is believed to be present either by brushing on the infected area with a camel hair brush or by dipping the whole plant into a solution. Since our Cyp house is not air tight we do not use Vapotone or Parathion. When some plants need a dose of something stronger, they are placed in a large cardboard box, sprayed with a one to fifty solution of Vapotone and kept sealed for several hours. During the growing season the plants are fed once a month with a foliar orchid fertilizer.

We transplant our Cyps about every two years. Some of the plants are divided while others just have their compost changed. Cyps like to be underpotted and not divided too frequently. The flowers are much larger and the stems much taller when the plant is not divided too frequently. The peak blooming season is during the later winter months. The whites and the Maudiae group bloom more than once a year. The lasting quality of the flowers, either on the plant, or as a cut flower is superior to most orchid genera.

C. Second Hawaiian Orchid Conference; Honolulu, Hawaii; October 1959

PART VII.

PERSONALITIES AND THEIR NURSERIES

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THE COMMERCIAL ORCHID GROWERS OF HAWAII
Oscar Kirsch

by H. L. Arnold [53]

After graduating from the Gymnasium, in Vienna, in 1915, Mr. Kirsch entered the municipal nursery of the city of Vienna as a volunteer apprentice. Experience of this sort was prerequisite to admission to the School for Horticulture and Pomology at Eisgrup, Morovia. In the middle of his second year at school, Oscar joined the Austrian army and went away for two years. After the war he came back to school and graduated and went to work in the conservatory of Baron Alfonse Rothschild, in Vienna. The Baron had 98 hothouses and 108 employees, all for his own pleasure. Eight of the houses were devoted entirely to orchids. Oscar, of course, has probably ten times as many orchids now as the Baron ever did.

After four years here, he went to New Jersey to a nursery, then to the Arnold Arboretum in Boston for three years. A few minor interludes and in 1930, he went to Armacost and Royston, in Los Angeles, where he remained for three years. While in Los Angeles, he married, at the height of the depression, and after a 50 per cent pay cut, Rosa Boesch. Their two daughters, Anne and Elizabeth, were both born in Honolulu. In general these two handsome girls prefer roses to orchids and have even been known to buy roses with their own spending money when they were surrounded by free orchids. Mrs. Kirsch has been an indispensable assistant in the seedling house particularly, through the years; that job which as my own yardman once told me was "girl-kind work." No one knows how many hundreds of thousands of seedlings she has transplanted.

He left Armacost and Royston to come to Honolulu to be Superintendent for the Atherton collection which under his management reached its highest state of size, diversity and quality. From 1935 on, with the advice and assistance of Mr. Atherton, he began the asymbiotic culture of orchid seedlings, receiving most valuable help from that dean of orchid culture in Hawaii, Dr. Harold Lyon, as well as from Joe Martin, who has been responsible for many improvements in the technique of the germination of orchid seeds.

Mr. Frank Atherton died in 1945 and eighteen months later, Oscar's business had reached such proportions that he was compelled to devote all of his time to his own business on Anuenue Street. In the fall of 1947, he had so outgrown that place that he constructed houses and ranges at this present location on Oahu Avenue.

When the war stopped the importation of Osmunda, Oscar began experimenting with the much larger fern roots of the Hawaiian tree fern, which we call Hapuu. About the same time terra-cotta pots became unavailable and he began to manufacture pots from tree fern roots and these pots are almost a trademark of his in Hawaii.

He has been responsible for many outstanding hybrids, too many to list them all. Just to mention a few, for example of Vandas, V. Nora Potter, that famous pentaploid, V. Betsy Sumner, V. Bill Sutton; of Phalaenopsis, Phal. Kekaha, Phal. Punaluu, Phal. Lokilani; of Cattleyas, C. Rosa Kirsch, another pentaploid, Frank C. Atherton, and so forth; of bigeneric hybrids, Rnps. Lina

Rowold; Vdnps. F. C. Atherton; Rnthps. Kamehameha; and Brsdm. Coronet.

Although officially a professional orchidologist, he is much more of an amateur in the original meaning of the word than many technically amateurs of my acquaintance. In the many years I have known him, I have never seen him angry or unpleasant or unkind to anyone. He is never too busy to stop what he is doing and help a beginner or even a more advanced orchid raiser in any of their problems. When I praised him for this characteristic once, he said, "Oh! that is just good business, because if the people I sell plants to don't succeed in raising them and like them, they won't buy anymore." That is not the reason he does it, I know. He would do it anyway.

To sum it all up, anyone who is sincerely interested in orchids and does not know Oscar Kirsch has missed something.

THE COMMERCIAL ORCHID GROWERS OF HAWAII
Robert Warne's Nursery in Nuuanu Orchid Garden [54]

Robert Warne's Nursery is located in Nuuanu Valley on the Island of Oahu at an elevation of about 300 feet. The district is considered one of the wetter parts of the city. The name Nuuanu Orchid Garden was used because he specializes in outdoor orchids.

The Warne brothers started in business in 1931 as a nursery growing shrubbery and other ornamental plants. At this time, Milton ran the nursery while Robert was on a plantation in the Philippines. Soon they got a few orchids, bringing some from the U.S. mainland and others from the Philippines and started to develop stocks, particularly of the terete V. Miss Joachim.

Local people gradually took more and more interest in orchids which then became the most important part of the business. In 1938 Robert returned from the Philippines and the next year the nursery was divided, with Milton specializing in the Cattleya and Robert in Vanda orchids.

It was not long before there was a sufficient stock of V. Miss Joachim to justify introducing the flowers to the florist market but in the early days before the war, this was not easy. Robert still remembers taking 2 dozen to each of the better shops, as free samples, in an effort to get them into the market and had only just nicely succeeded when the U.S. entered the war. Robert then went into essential war work while his wife, Dorothy, ran the nursery and delivered most of the flowers to the local stores, where hundreds of thousands of troops made acquaintance with V. Miss Joachim.

Robert Warne now has about 2-1/4 acres including his nursery and homegrounds. He has two lath houses, but the greater part of his land is used for growing V. Miss Joachim and semi-terete Vanda hybrids. He probably has the largest single planting of V. Miss Joachim in the Islands with over 100,000 plants. These are grown in long boxes as shown in the pictures and the plants in a given section are removed and replanted each five years. The flowers are nearly all shipped to wholesale florists on the Mainland, for distribution. These, and other growers' shipments, make up an important percentage of air cargo from Hawaii to the Pacific Coast.

Although V. Miss Joachim flowers represent the greater part of the business, some strap leaved Vanda are grown for the flowers and also for plant sales. His V. sanderana var. Terry won an A.M. award from the Honolulu Orchid Society and also from the American Orchid Society. This plant came from a group of V. sanderana seedlings Robert got from the late Mr. Frank Atherton who had crossed two fine V. sanderana plants. Robert grew 55 of these plants to flowering and selected this one as the best all around for vigor, color and flower production, and has used it as a stud plant. It is fifteen years old now and some of its progeny have flowered already. Many V. Princess Elizabeth and one V. sanderana have flowered with var. Terry as a parent. All have been vigorous growing and with fine color.

In the past five years, however, the greater part of his seedling work has been with terete and semi-terete Vanda, trying to develop something better than V. Miss Joachim for the flower trade. Much of this work has been very

disappointing and many thousands of the terete Vanda have grown up to flowering size only to be discarded as having no value. However, some very fine terete Vanda plants have developed as crosses between V. Miss Joachim, V. cooperi and varieties of teres and, after very careful selection, these are being increased by division.

Robert has also pioneered in another section of the orchid family. He developed the first commercial collection of Cypripedium - the lady slipper orchids - in Hawaii and still maintains a larger collection. There are many orchid growers in Hawaii who owe their first interest in this lovely group of orchids to Robert Warne for it was at Nuuanu Orchid Garden that they first saw them and it was from Robert that they first learned how to grow them.

1938 - "How would you like to try two dozen of these V. Miss Joachim orchids to see if customers like them?

1953 - "We'll need a special cargo plane for this shipment."

And so the flower business has grown to its present position as one of Hawaii's important minor industries.

THE COMMERCIAL ORCHID GROWERS OF HAWAII

J. Milton Warne - Jack Lane Nursery

by John S. Williamson [55]

Orchid enthusiasts, amateur and professional alike, can profit from the growing techniques practiced by J. Milton Warne of Jack Lane Nursery, the proud owner of one of the finer orchid collections in Hawaii today. This collection includes many botanicals of the Angreacum, Cattleya, Dendrobium, Phalaenopsis, Oncidium, Vanda, Epidendrum and Renanthera genera, in addition to his main forte, the Cattleya, and his fine collection of Miltonia. Outstanding in the botanical section of the collection are his Den. dearei hybrids, Ren. storeii and Angcm. veitchii.

Milton and his charming wife, Erma, are true orchid enthusiasts. Milton derives both his entire income and most of his pleasure through his orchid collection. Erma, too, is full of orchid knowledge and is quite familiar with the new orchid hybrids being hybridized by Hawaiian growers as she is responsible for the Bulletin's regular feature "New Hawaiian" describing each new hybrid produced in the Territory. In addition, she is responsible for registering these new orchid hybrids for recognition by "Sanders Orchid Guide" in England.

Milton's specialty is the Cattleya. His collection of hybrids numbers some 10,000 producing plants, not counting young plants and propagations. In fact, he is referred to by his many friends as "Cattleya Warne," a term which does not seem to offend because his primary work with orchids has been with the Cattleya.

Orchids are grown at Jack Lane Nursery in an orchid range which includes seven houses. Four are lath houses where mature plants are grown. Two are glass houses where the budding plants are rotated to bring them into flower and where seedlings, transplants, or other plants needing strict watering control are located. His newest orchid house is one made of screen, with the roof as well as the sides closed in by screen only. There is no lath or lattice shading. While this house is still experimental, it seems to have excellent possibilities.

For Cattleya and most of the other orchids in the collection, Milton uses clay pots and a compost made up almost entirely of our Hawaiian-grown tree fern fiber. He has found this composting material to be best suited to a wet district such as Nuuanu where rainfall exceeds 100 inches per year. Tree fern does not break down as rapidly as osmunda under "wet" conditions. The fiber permits good drainage, consequently good culture. However, it is deficient in nutrients and to compensate for this, he follows a judicious practice of supplying necessary major and minor elements through the use of mixed commercial fertilizers of Hawaiian manufacture.

Milton recognizes the serious damage which can result through attack of the many plants in his collection by insects and disease and therefore he follows a regularly timed insecticide and fungicide spray program. He utilizes many of the modern chemical formulations now available at nurseries and garden supply stores. He has had little trouble with the pesky "Cattleya fly" because of this rigorous spraying program. Milton's motto is that it is easier to keep insects away before they become established rather than trying to get rid of them after

they have established themselves. This is a sound program which more of us should practice.

Milton takes particular pride in some of the outstanding Cattleya hybrids which he has developed. When faced with the question "What is the most outstanding Cattleya hybrid in your collection?" he replies "That all depends upon what you want." A particularly distinctive type is represented by Lc. Kahili Kea, with its white star-shaped flowers on long stems, sometimes rising to a height of three feet or more. The Lc. Kahili Kea is a favorite for wedding bouquets. For exotic yellows and cream-colored Cattleya, he prefers Lc. Nuuanu. A heavy-textured long lasting Brasso is exemplified in Blc. Wake Island. For fine albas, he offers Lc. Jane Warne. For good steady production of large purples, C. Independence is his favorite and for the current fashion in round exhibition flowers, he recommends Lc. Kalakiela. All of these hybrids have resulted from the intensive hybridizing program conducted at the Jack Lane Nursery.

This story of Milton Warne and his nursery would not be complete without further mention of the Miltonia collection. I have no doubt but what his collection of Miltonia ranks as the best collection of orchids of this genus in Hawaii. Included in the collection are species and hybrids of both the Colombian and the Brazilian types. The Brazilian type especially has proven to be excellent for garden culture. They grow well near the entrance to Milton's orchid range, rambling over stumps of tree fern, coconut or even old redwood posts.

One of the outstanding changes in the philosophy of orchid growing in Hawaii during the last twenty years has been the sharing of knowledge between professional orchid growers and amateur orchid growers. Our Pacific Orchid Society has done much to foster the exchange of mutually beneficial information and our Bulletin has participated in this program to a large degree. This factor has played a leading part in making possible the growth of the orchid industry in the Islands.

Under the old idea of secrecy and mystery, beginners were naturally discouraged and often unsuccessful. Milton Warne is to be congratulated for the part he has played in fostering the exchange of information which has made orchid growing more popular and much easier for most of us. Besides his contribution of articles for the Bulletin, he has instructed hundreds of interested growers in the University of Hawaii - Extension Division course on orchid culture.

A second and equally important change in the orchid picture in the Islands has been the shift from an import market to an export market. Milton often relates a remark by Mr. Whitney, Territorial Chief of Plant Inspectors in 1935, "You fellows must get started raising these things here and begin to ship them out instead of importing orchids all the time." Milton took this both as a challenge and as a forecast. Today, the major portion of his income is derived through the sale of flowers and plants outside of the Territory of Hawaii. Unlike many other professional growers in Hawaii, he specializes in the sale of flowers as the major product which he offers in the trade rather than the sale of plants. This, in itself, speaks well for the confidence he has in the orchid industry. Certainly, he has accepted Mr. Whitney's challenge and has made his forecast come true.

Yes, Milton Warne and his wife Erma are real orchid people. They take great interest in their collection and in the collections owned by others and are never to be found wanting when asked for "growing" information.

THE COMMERCIAL ORCHID GROWERS OF HAWAII
The Ernest Iwanaga Nursery [56]

Ernest Iwanaga passed a small local flower shop back in 1935 and saw Den. superbum and Den. phalaenopsis in bloom in the window. That did it. A new collection was started, with three plants, the two Dendrobes mentioned and a Phaius grandiflora.

It did not take long to fill the first lathhouse although it did strain the treasury.

With a good technical background in the chemical and bacteriological control techniques of the bakery and ice-cream business, it was natural for Mr. Iwanaga to make an early start on growing from seed by the asymbiotic method. He has more than the average success because in 1941 the number of community pots became so large that he became semi-commercial and disposed of his surplus.

This went on until 1946, when Mr. Iwanaga retired from business altogether and devoted his full time to the development of his nursery. At present the sales end of the nursery is taken care of by Wm. Kirch Orchids Ltd. of which concern Mr. Iwanaga is treasurer and director.

When asked whether changing trends had affected his breeding program and what the current objectives of this program are, he noted that while in the past, almost all the genera had been used except Cymbidiums, the more recent breeding had been done with the idea of breeding orchids of ornamental value as contrasted to orchids for the flower market and a good deal of progress had been made in breeding the smaller flowered cluster type of Cattleya. Currently, he is interested in bi-generic crossing of Vandas, Phalaenopsis, Aerides, Renantheras, Diacriums and Epidendrums. Mr. Iwanaga started his first cross with the number one. His last number is 1290.

Many fine hybrids have been registered from crosses made at the Iwanaga Nursery. To name a few, there are V. Jennie Hashimoto, V. Jane Shimamoto, V. Gertrude Miyamoto, Lc. Terry Wayne, Blc. Alexann, and Renantanda Careen Ishii. The nursery now holds plants in practically all the commercial genera with Vandas and Cypripediums predominating, with about 110,000 plants in all.

The nursery nestles in the hills in the upper reaches of Palolo Valley. One wonders how such an immense collection can be kept so immaculate and by what green-thumbed magic such perfection of culture is achieved. The Cypripediums are superbly grown. Plants which in some amateurs's collections might struggle along with 7 or 8" leaves, and a small flower, here had four or five growths, leaves 15" long and a magnificent flower on a tall strong stalk. I feel sure of my ground here, because one of those plants had come from by collection and still had my label on it! W. C.

Growing Cypripediums In Hawaii
(from a talk given by Mrs. H. Fujiwara before HOS) [57]

"Cyps are not too hard to grow" so says Mrs. Henrietta Fujiwara, who has experimented with practically all types of compost, media or whatever you wish to call it by. She has gone from osmundine, "Black Magic" mixture, secret media, firbark to the present hapuu and sphagnum mixture.

Hapuu (10 parts) and sphagnum (1 part) make a very nice mixture that can be placed around the roots and packed firmly in the pot, not too tight for better drainage, not loose so the plant and all will float up when it comes to dunking. Firbark went out because of this trouble. Incidentally sphagnum seems to discourage growth of fungi and molds.

Fertilizer as foliar application, once a month is all she can get around to just now, however, twice a month is suggested during the growing period.

Red spider (mites) and bacterial rot are the two most common troublesome characters in Cyps. She suggests Kelthane, wettable dust, for the red spider mites and Nitriphene for the bacterial rot.

She suggests watering depending on the weather conditions, keeping the roots moist but not damp or water-logged, "wet-feet" is frowned upon. The good drainage should prevent water-logging and allow for free circulation of air. Instead of heavy watering, sometimes a misty spray overhead just to dampen the leaves and moisten the atmosphere is very beneficial and all that is necessary.

She has found that dividing the plant too often inhibited flowering and set back the plant, some hybrids more than others.

Mrs. Fujiwara had a very nice group of Cyps on display. There were old crosses and the latest crosses not named as yet, species and hybrids showing generic traits. Colors of white, yellow, green, red and combinations of them were shown. The good and bad features of the flowers were pointed out.

There were the red Bordure, yellow and brown Grove 'Lyoth Charm' AM AOS, spotted Gertrude West 'Flora', yellow Dervish, white and reddish brown (Wendbourn x Regent), white and tan Hellas FCC RHS, white and brown Farnlow, white and brown spotted Cameo 'Wyld Court', white and green Bruno 'Palmers', green dots on brown London Wall 'Lafayette' AM AOS, creamish white Albion FCC cross, white (Peridot x Snow Bunting), white, yellow and green Chilton, white, green and brown Balaclava, white and yellow Dervish 'Tenran' HCC AOS, white and yellow Sungrove and mahogany colored Harrisianum 'Ball' and Leeanum and Maudiae. All were very beautiful.

When the Fujiwaras started growing Cypripediums in Manoa Valley some fifteen years ago it was the general consensus of opinion that the Cyps would not bloom, although at that time Cyps were being grown in Nuuanu Valley, Kaimuki, Diamond Head and Pauoa Valley by a few experienced growers. Since then the Fujiwaras have gone far and mastered the art of growing Cyps and are enjoying the beautiful flowers throughout the year, some species or hybrids are always in bloom. There were some sad moments and experiences, however, they have learned not to fall into them again.

This genus of the orchid family is divided into four general groups: Selenipedium from South America, Phragmipedium from Central and South America, Cypripedium from North America and Paphiopedilum from the tropics of Asia. The more popularly grown and hybridized are the Paphiopedilum, however, they are more commonly called "Cyps."

The species are generally divided into two groups: (1) the plain green leaves or cool climate varieties that are happy with a night temperature of 50-55 degrees Fahrenheit and rising to a temperature of 75-80 degrees Fahrenheit at the peak of day; and (2) the mottled leaves or warm climate varieties whose minimum temperature of 60 degrees Fahrenheit is ideal. For the modern hybrids a minimum of 55 degrees Fahrenheit night temperature is desirable. Temperature can be controlled by misty sprays.

The Fujiwaras grow the Cyps in a glass covered house that is glassed on two sides and screened on the other two sides with ample ventilation. Since the temperature in the islands falls within the desirable area of 60-80 degrees Fahrenheit they have no problem of growing or blooming the Cyps. They do not worry too much about the temperature or humidity since the Cyps are grown under prevailing weather conditions. They apply a little more water than other orchid genera, however, since the Cyps are not equipped with as much water storage. The tough leathery leaves and large succulent roots do afford some water storage. Under normal conditions the Cyps are watered daily. Under abnormal conditions as was experienced the past several months it has been rather difficult to determine whether or not to water. Sometimes a light syringing of the leaves or dampening the floor was all that was needed.

The amount of light is about 60 to 70 percent.

During the growing season foliar fertilizer is applied. Sprinkling dry fertilizer is not recommended (Tabu) because the compost decomposes too readily and the roots are destroyed, directly by the chemical fertilizer or the rotting compost, and indicated by the yellowing and dying of the older leaves.

The Cyps are repotted every two years, keeping the size of the pots down to the minimum, under-potting has been very successful. The plants seem to do well when the roots are clinging to the insides of the pots. Experience has been against severe dividing for propagation, one growth seems to revert to seedling nature. At least two old growths with a new growth is recommended. The Leeanum, insigne, the whites and species do not like to be divided into smaller pieces. They will not bloom for a few years and some seem to get smaller while some just shrivel away. The newer hybrids make larger growths but mature only one or two growths a year. These usually propagate by taking two old growths and a new lead and removing the older growths for divisions. One has to be very careful in dividing as the new growth may not have any roots.

The red spider mites and bacterial rot are the two most common enemies in this genus. The red spider mites are most prevalent during the dry, hot period of the year, usually in the summer and the bacterial rot during the winter months. Keeping the humidity high by dampening and spraying regularly with Kelthane (a wettable powder from Geigy Co.) and keeping the house clean will give healthy and strong plants. If troubled with bacterial rot keep the plants on the dry side, give them a soaking in Nitriphene for two hours, then dry them out but not until they begin to shrivel. If the infestation of red spider mites is

too great, dunk the entire plant, pot and all, in Kelthane solution (1 tsp. per gal.). Remember to give the plants a good drench of water prior to using fertilizer or insecticide.

The flower is too heavy for the slender young stem so its a good idea to put stakes while in bud or before the bloom hardens or sets. The result will be a well poised flower.

The first registered hybrid was Cyp. Harrisianum (barbatum x villosum) in 1869. Cyp. Leeanum (insigne x spicerianum) was registered in 1884. Cyp. Christopher (Actaeus x Leeanum) registered in 1902, variety Grand Duke Nicholas (1914) was the beginning of the larger flowers known today.

Search for the Perfect Blue

by Lois Taylor [58]
Star-Bulletin Writer

The orchid everyone is searching for is the orchid without any orchid in it. "The purple orchid is no longer popular." said Masatoshi Miyamoto, commercial orchid grower, hybridizer and for six years a trustee of the American Orchid Society, the Phi Beta Kappa of orchid growers.

"The trend is to the deep, bright shades - red without a tinge of blue, the clear greens. The only color we have not really been able to produce is a clear, deep blue without any purple in it."

Miyamoto's hybrid orchids, famous for their yellows and oranges, will be among the thousands to be exhibited Thursday through next Sunday at the Honolulu Orchid Society's 42nd Annual Plant and Flower Show. The oldest and largest continuing orchid show in the United States, it will be held at Blaisdell Center exhibition hall. Show hours are from 6 until 10 p.m. Thursday, from 9 a.m. until 10 p.m. Friday and Saturday and from 9 a.m. until 4 p.m. Sunday. Admission is $1.50 with children accompanied by adults free.

Miyamoto founded M. Miyamoto Orchids in 1946. The nursery is now located in the Waianae Valley, managed by Miyamoto's son Calvin where almost one acre of land is under shade-screen cloth, sheltering more than 100,000 growing plants.

On a recent morning, architect Gilman Hu, who is president-elect of the Honolulu Orchid Society and show chairman, drove the reporter and the photographer to Waianae to visit the Miyamotos - Masatoshi and his wife, Helen, and their son and daughter-in-law, Calvin and Dianne.

On the drive out, Hu talked about orchid addition. "The worst thing you can do to a friend is to give him an orchid. I first started buying from Miya (as all serious orchid growers call Masatoshi Miyamoto) when my wife and I wanted to send a plant to somebody for an anniversary or in the hospital.

Then we decided to grow our own. We started out with a $9 community pot that gives you about 30 small plants. So we went out and bought 30 thumb pots, about 2 inches in diameter, to repot them. Then in a little while, the 30 plants have outgrown those small pots and you have to buy somewhat bigger pots.

So now you have the 30 thumb pots leftover, and what are you going to do then? What you do is to buy another community pot, and you're hooked." He now has 3,000 orchid plants and has declared an embargo, for lack of space, on any more.

The Miyamoto property is about a mile up Waianae Valley Road, guarded by three large but amiable dogs. A big shed at the entrance is the mailing department - 90 percent of the orchid plants grown here are shipped out of the state, and his customers ultimately include many of the world's serious collectors.

But they generally have to buy the plants from a middleman. Masatoshi Miyamoto is a superb orchid breeder but a poor correspondent. "It takes too many letters to sell to collectors." he complained. His son added that his father tends to let correspondence stack up on his desk, and the collectors who buy directly from him place their order by long-distance telephone calls.

The office and laboratory are located in a two-story house that the Masatoshi Miyamotos built for their younger son, Samuel. He gave orchid raising a try, "but he didn't want to work at a 10-hour-day, 7-day week kind of job" his mother said. So Sam joined the faculty of a small Southern California college where he teaches horticulture.

"When the kids were small," said Mrs. Miyamoto, "the relatives said, 'How come you work so hard? Take some time off and bring the kids to a picnic.' I did, but I brought community pots and flasks with me, and I'm planting from the flasks to the pots while the relatives watch the children."

The flasks are where the orchid plants are started from the seed of mature plants or are cloned (a method of propagation from a single plant by cultivation from the tip of the new growth). A laboratory has been set up in the living room of the house Sam never lived in, and there Dianne Miyamoto raises thousands of tiny orchid plants.

"We can clone as many as 100,000 plants from one cell," Dianne said. "The contents of one flask would fill this entire property. Each will be an exact duplicate of the parent plant."

The Miyamotos have created dozens of hybrid orchids by crossing two different plants to produce a third. "Every time you cross two parents and make a new orchid you have the right to name it," Calvin said. Some are named for people, some for events - sometimes you can tell about when the hybridizing was down by the name. 'Ranger Six A-OK' bloomed when the spacecraft landed on the moon, a new one is 'Star Wars.'

"It takes between two and five years from the time of the cross to the time of the flower. Pollen from one flower is used on another variety to develop a seed that is fine as powder. The seeds grow in a pot on the plant, from which they are carefully cultivated in flasks of sterile agar-agar (a gelatinous substance made from coconut milk, kanten and sugar). They are reflasked as they grow until they are about two inches high, and then they are planted in community pots."

The hottest hybrid today is a green orchid called "Ports of Paradise," developed by a grower in Florida, which thrives in conditions cooler than Hawaii. "The hardest color to grow locally is the green that is very popular now." Calvin Miyamoto said.

"In our intense light, green turns yellow or chartreuse or mustard, even though it blooms green. In a cooler or darker growing condition, the flowers will stay green. Two-inch seedlings sell for $200, a small plant is $400."

Dendrobiums are the most frequent flowering of the orchid plants, he added, and probably the easiest to grow under local conditions. "You don't need a greenhouse. In fact, they will grow on the lanai of a condo, in the shade of a tree, even in direct sun."

"What we are trying to develop for shipment to the Mainland is an orchid that will compete with a potted plant - vigorous growth, multiple leaves, a small and compact plant. The flower will go from bud to bloom in two months and will bloom again six months later. Connoisseurs are willing to wait a year for a bloom, but most people just want lots of flowers."

"We are working on a strain to be bought by the people who grow green plants and would like something that flowers, but that doesn't need a whole lot of attention. Dendrobiums are easier to grow in pots than anthuriums are."

"When you get into Cattleyas (the classic corsage flower), you need shade, protection from too much sun and too much rain. People are staying away from them for that reason, and they bloom only once a year."

Cymbidiums, that sprout sprays of medium-sized blooms, are also less popular than they once were because of their size. Growers would rather have six smaller plants. The Miyamotos grow Cymbidiums for their long spikes of blossoms that they wholesale as cut flowers.

The Cymbidiums flourish in one area of the big shade house, but there isn't much order to the way the rest of the plants are set out. "We would like to arrange them by genera," Calvin Miyamoto said, "but whenever we have an open space, we just put in another plant."

"We have considered automatic watering, but we can't. Different sized pots require different amounts of water. In the summer we water daily, but the fellow who does the waterings has to use his judgement. Orchids don't like 'wet feet' - they shouldn't stand in water."

During the rest of the year, the entire collection of more than 100,000 orchid plants is watered three times weekly, and selected plants get more frequent attention. They are all sprayed every other week with a mixture of soluble chemical fertilizer, fungicide and insecticide in water, and are treated twice a year with a special organic fertilizer.

When Masatoshi Miyamoto became a professional orchid grower in 1946, he started with just 680 square feet, and by 1952 he had expanded the business to 40,000 square feet. Raised on the Damon estate at Moanalua where his father was gardener and vegetable grower, Masatoshi as a child made a friend of Donald MacIntyre, an English horticulturist who was manager of Moanalua Gardens.

Miyamoto graduated in 1929 from Honolulu Vocational School as a mechanic, and for several years ran an automobile repair shop on Waiakamilo Road near Dillingham Boulevard.

During this period, he became interested in orchids. "We started with one plant," Helen Miyamoto said. "My husband used to say that somebody gave it to him, but later I found out he bought it. A community pot cost $2 in those days, and that was a lot of money. It was before our children were born, but we had his invalid father, his sister and a cousin."

"In 1939, when I first wanted to go into raising orchids, I knew I needed to learn more." Masatoshi Miyamoto said. "A friend wanted $300 to teach me

what he knew but I didn't have that kind of money. Instead I took a course from Dr. White at the University of Hawaii." Dr. Edward Albert White of Cornell University, author of "American Orchid Culture," offered a non-credit course at the university that year, and Miyamoto is probably his most successful student.

Gilman Hu said, "Here's a fellow with no real college training, but he knows genetics and Latin, more about business than a lot of business school graduates, and he still treats orchid growing as a hobby."

"It's unpredictable, it's not like repairing cars," Masatoshi Miyamoto explained. "The most exciting time is when the first bloom is just coming up from a new hybrid. Nine out of 10 times you will be disappointed, but that 10th time will be something worth the three- to five-year wait."

"You have to grow many, many orchids before you get a great one. They are like children in the same family, with the same genes and the same environment, but each very different."

He pointed at a red clay pot about the size of a pint measuring cup in which a small green plant was growing. "That's an epidendrum I just brought in from Santa Barbara," he said. Asked what the blossom would look like, he answered, "Your guess is as good as mine - spidery, not that colorful, but different."

"What you look for is a flower that opens well, has good shape and color. People always want something different. Otherwise they say, 'Oh, well. I've got that already.'" Good shape, according to Hu, means that a circle could be drawn around the flower and all in it.

Many hybrids fail. "A plant may bloom with a deformed, unopened flower," Calvin Miyamoto said. "We don't like crosses that give you crippled flowers, so that plant will be destroyed."

Miyamoto's most successful hybrids are Blc. Waikiki Sunset, developed 35 years ago, Blc. Waikiki Gold and Blc. Waianae Sunset. Many of these will be displayed by orchid growers at this week's show. Plants must be in bloom in order to be entered in the show, and growers have been working in the last several weeks either to speed flowering or to forestall it so that the plant will be in full blossom for the show.

"There are fertilizes to force blooms, and they can be slowed down by keeping the plant cool and in the shade. But there are thousands of flowers out there that have never been seen because the plants weren't blooming at the time of a show," Calvin Miyamoto said. "Some growers will keep 30 plants of the same variety so that they can be sure that one of them will be in bloom at any given time."

Calvin now manages the family business since his father officially retired recently to follow his hobbies, "golf and Las Vegas," Masatoshi Miyamoto explained. But he still is looking for the perfect blue. "It's a challenge," he said. "A blue Cattleya - we hybridize two of the darkest of the light blues and we still get a light blue. What I want is a blue with no purple in it - a deep blue orchid. I guess I'm retired, but there is no way I can be separated from the orchids."

The Tale of the Rebel Gardener

by Pierre Bowman [59]
Star-Bulletin Writer

The front garden is banks of bromeliads - plants that are cousins of the pineapple. They range in size from mock-grasses to enormous rosettes of leather leaves. Their colors go from deep greens to near-chartreuse to delicate pinks to bracing maroons - and these are merely colors of the leaves. They are plants with a strange, emphatic beauty.

They are the front garden of May and W. W. Goodale Moir in Dowsett Highlands in Nuuanu Valley.

May Moir strolls the walled garden. The profusion of bromeliads is carefully planned; Moir and her husband planted them.

"You've never seen another garden like this, have you?" she asks rhetorically. "My husband and I - we're rebel gardeners."

How many plants are the rebel gardeners tending?

"Have I counted? No. But you're welcome to," she replies, with hearty good humor. "I'm not interested. I don't give a damn. I don't grow for prestige or being able to say I've got 750,000 plants. I grow for the joy of seeing them, of sharing them."

"We're rebels. We've always done just what we want to."

One of the things Moir has wanted to do for years was keep a diary of her garden. Since the early 1950s, she has spent Mondays at the Honolulu Academy of Arts, creating the dramatic floral and foliage arrangements that are displayed in the galleries and courtyards. She figured a month-by-month diary of her garden would serve as a good guide to the half-dozen women - "the girls," in her parlance - who are on her arrangement crew at the Academy.

The book finally got written and is called "The Garden Watcher" (University of Hawaii Press, $12).

It is now in bookstores, and there will be autograph parties from 2 to 4 p.m. at the Lyon Arboretum Saturday and at the same hours at the Honolulu Academy of Arts on June 25.

The subject of the diary, of course, is the Moir garden, a major source of material for the arrangements at the Academy.

It's purely scrounge," says Moir. "From my garden, from my neighbor's garden, from the girls' gardens. Or somebody's rubbish heap."

"I finally did the diary so we'd have a record of what we could expect each month. Some things are very seasonal. And some things seem to be available almost all year. And some things you think are available all year, except for a couple of months. Like plumeria. Just try to get them at the first of the year."

Moir's book tells you, actually, that if you're looking for plumeria in January, it had better be a Swanzy white.

"From the beginning, it was firmly in my mind that it would be a diary, a month-by-month diary, kind of a chat on what I had done for fast, easy, inexpensive ways to do things. Like a June wedding - what do you do if you have an hour? Or even if you have two weeks, you can do all your planning and two days before the wedding you look at a plant that you're counting on and say, uh-uh, you're not going to make it."

"You've got to be realistic. When a bride wants blue and has her heart set on hydrangeas, I want to back out. I don't do this commercially. I do this as a friendly thing."

Moir backs away from blue hydrangeas because she knows they have to come either from the Maui uplands or the Volcano area on the Big Island - and there's plenty of chance for them to wilt before they make it to an Oahu wedding.

"And if they picked the ones that have just opened - they'll flop no matter what," she says. "They're about as treacherous as using magnolia."

At any rate, Moir finally wrote her book. She has donated all the rights to it to the Harold L. Lyon Arboretum, just as she and her husband donated the rights to a series of books for orchid lovers that they wrote together.

"The Garden Watcher" began as a diary for "the girls," but when she showed it to a couple of horticultural buddies, they pushed her along. One was amused and surprised; another told Moir "there are so many things you know that you haven't put into it, so fatten it up."

So Moir did, not only describing her garden but dispensing helpful hints such as prune your poinsettias in the months that begin with the letter A and wear gloves if you're mucking around with bamboo or your hands might get stained a particularly unflattering shade of purple.

Moir added another dollop to the end of each chapter: a favorite recipe, because it turns out that she's as familiar with kitchens as she is with gardens. She also noticed that cookbooks keep selling like hotcakes, so a dozen recipes certainly couldn't hurt.

May Moir and gardening go back to her childhood, first in Kaimuki, then in Manoa, and finally in Nuuanu.

"Every seed I got my hands on I planted," she says, recalling her earliest childhood. "My mother would have monkeypod sprouting in her flower bed. That's when I relegated to tin cans."

Goodale Moir built the Dowsett Highlands house 53 years ago, and it's from the same school of mock-Moorish architecture that brought us Honolulu Hale and what was formerly the campus for girls at Kamehameha Schools. The house is a solid achievement of rugged beams, mortar and tile set on a fairly standard suburban lot - if triangular lots are standard.

The house cuts the yard into triangles and the Moirs have made the most of them as gardens. They began taking their present form in 1949 when May and Goodale married. It was a second marriage for both of them.

As they began life together, the Dowsett place was dense with orchids. Goodale Moir still holds top honors as one of the world's extraordinary breeders of orchids - most of them developed right at home.

"When Goodale and I first married we were really deep into orchids," says Moir. "Then new bugs came. The coffee twig beetle. The vanda twig beetle. Our orchids were so densely planted as landscape that we could not control those new bugs.

"There was no use fighting it. We simply got rid of the orchids. Chopped them up and threw them out."

The Moirs had the front yard excavated and walled and gradually the bromeliad garden took shape, supplanting the ill-fated orchids. Three or four years later, the "puka-puka wall," as Moir puts it, went up on the mauka corner of the triangular lot.

The wall is hollow tiles, set sideways, to allow the breezes sweeping down Nuuanu Valley to pass through and create an environment for more bromeliad and fern planted in the area.

The Moir gardens are designed as micro-environments, and the mauka triangle, for instance, is significantly cooler and damper than the garden on the makai side of the house.

Bromeliads are found in all sorts of climates, and Moir explains that the "puka-puka wall" is important for the ones that especially like to perch on trees. They're not parasites, she says. They're just perching, and gathering their nutrients from the air itself and from leaves and bird droppings that fall into their cup-like centers.

Around the corner from the perching bromeliads is a garden completely covered by plastic roofing. It houses what's left of the orchids - essentially a collection of a variety of phalaenopsis.

"This used to be a swamp," says Moir. "absolutely squidgie. Now it's another micro-climate."

It also represents something typical in the Moirs' approach to a garden; it's not a greenhouse with ordered rows of orchids. Rather, it's a covered garden where people can share the space with plants. There's a babbling fountain that was crafted by a potter, but at first glance you could debate whether it's animal, vegetable or mineral. There are places to sit. And there are orchids that have clearly made the place their long-time home.

One is attached to a mossy shutter that flanks a doorway that leads into the living room. It is the same plant that Goodale Moir's father imported from the Philippines in 1917. It lived in Hilo until moving to Nuuanu in about 1950, where it assumed its present spot in a small pot attached to the shutter. The pot disintegrated some years ago, but the orchid doesn't seem to mind.

Outside the orchid room, there's another paved garden. This one used to feature an enormous popcorn orchid plant that became quite famous in the mid-'50s for having more than 40,000 blossoms at once.

The Moirs got tired of the plant dominating that part of the garden and of the strangers who stopped by to see it.

"We felt we were being had by that plant," says Moir, explaining that two modest pots of popcorn orchids are all that remain of the original prolific monster.

The two pots, as it turns out, went down during Hurricane Iwa.

"I just put them back in the pots and gave them a little fertilizer and told them, 'Come on, you'll be all right.'"

They are.

Moir clearly doesn't get worked up to sentimental frenzies about plants.

She remembers getting rid of the orchids after the attacks by the new beetles.

"We chopped them up and threw them out. Of course it's heart-breaking seeing good material being ruined. But I like change."

"Gardens are like women's fashions. You don't want to wear the same dress every day. But some things you'll always love."

"Some plants have bad habits. They're too aggressive. You'll look at one and say, 'I don't like the way you're acting.' Or somebody doesn't want to grow. So why kill yourself?"

The garden with the popcorn orchids has a huge plumeria tree. bromeliads are perched in its high branches. Moir looks up at them.

"Those bromeliads have no business up there," she says. "That happened before we were smart enough to know they'd do that with their seeds."

The final part of the Moirs' garden - the makai side - might be thought of as a working garden.

"I think a garden should give you something back," says Moir, surveying modest patches of all kinds of things: strawberries, broccoli, Manoa lettuce, a grape vine, green onions, Swiss chard, basil, corn.

Moir says that her husband has been commenting for years on her thrift. Her recipes tend to support his opinion.

Take Moir's English marmalade:

She notes that when papayas become scarce, she turns to Mainland oranges and grapefruit for breakfast fruit. Don't throw out the skins, she advises. They're the beginning of your marmalade.

I save the skins in the refrigerator until I have six orange skins or four orange and two grapefruit, and then I am ready to make a batch of English-type marmalade. After many experiments, I believe I have achieved an easy, inexpensive, and foolproof recipe using these normally discarded skins," she wrote.

To wit:

Soak the skins in a large amount of water overnight, weighing them down with a heavy plate. Drain next day. Cover with water and drain a second time. Put skins in large pot, cover with fresh water, bring to boil. Simmer about 30 minutes until skins are soft but not mushy. Drain off the water. When the skins are cool enough to handle, take a teaspoon and scoop out all the white pith, leaving only the rind. Slice the rind finely or cut with scissors. You should have two cups of rind. If you have more, put it aside to use in other recipes.

Measure four cups of sugar and put it aside.

Put the cut rind in a pot with two cups of water, one cup of lemon or lime juice (bottled juice can be used) and one package of powdered pectin. Bring to a brisk boil. Add the four cups of sugar all at once, stirring constantly. Bring back to boil and boil for as long as it takes to give a jell test. Cool slightly before pouring into sterile jars (if too hot, the fruit will rise to the top of the jar instead of being distributed throughout the marmalade).

May Moir is 75. Her husband is 87 and confined to bed with circulation problems but is still active with his writing.

"I'm beyond climbing up cleaning the gutters," she says. "One person with three operations is enough in the household." She is referring to her husband.

Yet Moir is certainly no dilettante gardener. She does much of the work herself, hitting the garden at day's light.

A graduate student works seven hours a week at general chores in exchange for lodging in an apartment in the lower part of the house. Two hours a week, there's a yardman, mostly for tending the grass that gets between the street and the garden walls.

If the garden is her joy, floral-and-foliage arrangements are mostly reserved for the Academy. Like the cobbler whose children have no shoes, she says the Moir place does not feature a lot of cut flowers.

"Hell no," she says, glancing around her living room. There are small orchids in tiny pots and there's one arrangement of cut fern.

"That green fern, that's a treasure. It'll last six weeks. Just give it an extra drink every couple weeks."

Commercial Aspects of Orchid Culture

by William Kirch [60]

I am sure many of the people in attendance here tonight are interested in the commercial aspects of orchid culture. There are no doubt many of you that have plans - or, perhaps dreams, of one day being a full time orchid grower with the possibility of having this enterprise support you and your families.

For this reason perhaps this talk will be able to give you a few facts to think about - and to put into relation the position of an Orchid Society in the community and what the relationships between an Orchid Society and the Commercial Grower might be.

I have been in commercial orchid work for well over thirty years and twenty-seven of these in Hawaii. As such, I have been able to observe many changes in commercial orchid growing and to formulate some rather definite opinions as to whether or not there is any future at all for Hawaii in such an endeavor.

To some degree I feel it is unfortunate that a large majority of the people in Hawaii that grow Orchids do so primarily with a desire to make money from it - rather than for the purpose of a true hobby or pure enjoyment.

The Orchid Industry can be categorized into three major fields in Hawaii: (1) Cut Flowers, (2) Plant Rentals, (3) Plant Sales.

(1) Cut Flowers: Many great dreams have gone down the drain, so to speak, in this region. Many people have tried to build a substantial business. Some rather large businesses have been formed, a good deal of capital spent, but in the majority of cases most have after a reasonable period of time ended in failure. There are some exceptions that through perseverance, knowledge, and hard work, they have survived. In cut flowers, Hawaii faces several factors that must be resolved before any great success will ever be obtained. Principally, among these are marketing, quality growing, and a price structure that will allow a reasonable return to the grower.

Marketing - This is a highly complex part of business that takes a lot of money, knowledge, and cooperation to solve. Unless cut flower growers are willing to organize, control production and have enough capital to advertise their products in new markets success can never be achieved. The current approach to this by the Anthurium growers in Hilo - by organization, cooperation with the University of Hawaii, the State Department of Economic Development is a good example of what would be needed to formulate a cut flower market for Hawaiian Orchids. A heterogeneous mass of small growers, operating independently will never succeed in creating good progress. An excellent example of market creation has been the Garment Industry in Hawaii. They have been in operation about as long as Hawaii has had hopes for a cut flower business and started much the same way, with a lot of small independent manufacturers basing sales primarily on the local market. By organizing the Hawaiian Fashion Guild, cooperating with each other, pooling resources and funds, seeking State Funds to help, they now have an industry that is very healthy and have developed a good export market. A cut flower industry for Hawaii must do the same.

Quality Growing - A large percentage of the flowers produced in Hawaii are what you might essentially call open-field crops. In quality they are very inferior to flowers produced under glass in controlled greenhouse conditions in temperature zones. Before Hawaii can ever develop a good cut flower industry much work needs to be done on quality control. This would involve a concentrated breeding program for suitable varieties, much research on improved growing conditions and suitable but economic structures that will improve quality over open-field conditions. One could devote an entire talk to this subject.

Price Structure - It is imperative to the success of any business that there be a reasonable profit return to the people involved in it. In most instances in the past one of the principle reasons for failure has been that those doing the marketing have not recognized that the grower must make a profit. Their principle approach to marketing has been to sell Hawaiian flowers cheap. This is, of course, the easy way - but by doing so you must at least get enough money for your product to give the grower a profit. In many cases this was not so and the end result was that the agents doing the marketing killed the goose that laid the golden egg.

(2) Plant Rentals: Mr. Oscar Kirsch has proved this to be a very successful type of operation that seems uniquely suited to our Hawaiian Tourist type of community. It does require a reasonably large inventory of mature plants, a selection of varieties that last well in often unfavorable conditions. It is a business that can be developed with less capital than most of the other types of Orchid businesses, but requires a good deal of knowledge and skill.

(3) Plant Sales: This region probably more than any other is the one that most people here tonight are interested in. It is also probably the most complex of all the three types of orchid businesses discussed. Plant Sales in Hawaii can be segregated into three major section: (1) Local Sales, (2) Export Sales, (3) Export Sales to Commercial Growers.

(1) Local Sales: This is where most people start. When they get extra plants above and beyond their needs it, of course, then becomes their objective to sell them. It starts usually at home in their own collections - then expands into placing plants in garden shops, florists, on consignment, and eventually trying to find an export broker that can move a quantity for them at export. Unfortunately, all of these steps leave the producer at the mercy of the simple economic rule of what the traffic will bear. At home - or what we in the industry call "Backyard growers" sales prices usually are whatever the grower thinks he can get. It very often has no relation whatsoever to the cost of production. In the garden shoptype of sales there is, of course, keen competition for sales and most operators of garden shops try to sell plants and so you get into a position where they dictate to the grower what commission they must have to let him place his plants in their store. Usually it is somewhere between 33-1/3% to 40% of the retail price - due to the fact that it is only on consignment. If, as in most business, the garden shops were forced to purchase the plants they sell as markets do for vegetables - or other perishable products sold, the mark up would be 100% or more to cover losses. So, again, the grower is at the mercy of market. He take what he can get regardless of his cost of production.

(2) Selling to Brokers: Usually a person acting as an expert broker

cannot spend money for market development, because he never knows what he has to sell. His procedure is to keep himself well informed of available stock in backyard collections, surpluses in commercial collections, then to form contacts with people outside of the state. Periodically he will then circulate lists among these people - get orders, go around collect the plants - and then ship them. Again, he is faced with insufficient funds to compete with large companies on the mainland, Europe, and elsewhere that spend large sums of money on catalogues, colored illustrations, and market development. He has only one way to compensate. Sell cheap! This again is the root of all the basic problems of the orchid industry in Hawaii - If you sell cheap - How does the grower come out? The true fact is he can't! He must sell for a profit above his costs.

This, then will bring me tonight to the principle subject of my Talk, the relationship of our type of Commercial Orchid activity to local and mainland orchid Societies.

To do so I must clearly state what Wm Kirch-Orchids, Ltd. is. We are a marketing corporation, organized under the Laws of Hawaii, owned in equal shares by six Hawaiian Orchid Nurseries - Ernest Iwanaga, T. Kazumura, T. Kodama Orchid Nursery, Inc., M. Miyamoto, H. Otake and Woodlawn Nursery, Inc. It has been the purpose of this organization to try to develop an export market for the sale of the plants of our own grower-owners. Many people sometimes think we are unfriendly to local participation and cooperation. However, I should like to point out that we never organized to conduct local sales - but export sales only. Our grower-owners always wished to maintain their own identity in relationship to local conditions. Therefore, theoretically we as a company should not in reality have anything to do with local conditions. Unfortunately, it is not that simple and I will try to show you some of the problems involved and where perhaps we have supported local orchid societies more than most people are aware of.

Direct participation - In money the advertisements we have placed in the Bulletin of the Honolulu Orchid Society has over the years amounted to well over eleven hundred dollars and we have donated trophies well in excess of two hundred and fifty dollars. So, roughly in round figures one could say we have in the past fifteen years spent with the Honolulu Orchid Society about fifteen hundred dollars or $100.00 per year. Add to this our support of the Pacific Orchid Society Bulletin for a similar expenditure of about $3,000.00. Not one penny of this has resulted in direct business sales for Wm Kirch-Orchids, Ltd. Our ads are of an institutional type. Perhaps, it has had some beneficial effects for our growers in local sales.

When you realize that we must also advertise in many other orchid publications to create a market for Hawaiian Orchids you will be able to see that we spend annually in excess of $5,000.00 per year in support of these publications. Over a fifteen year period this has been an expenditure of approximately $75,000.00, which has to be generated from sales. This is not an inconsiderable sum of money - but it is necessary cost of doing business on the export market. This money must come from the price we got for our Products, plus costs of growing, and the cost of shipping and administration.

To sell at export you must in addition to the above support of orchid societies put out catalogues, price lists, colored promotion's programs, write articles, many things that tell the story of Hawaiian Orchid Plants. Our participation in this sort of promotional work has cost us in the past fifteen

years more than $150,000.00. Thus, you can see that in money spent by our company in support of orchid societies, and trying to get people to love and grow Orchids from Hawaii we have spent close to one quarter of a million dollars in promotion. Such promotion has a value to all growers in Hawaii.

Locally, several of our growers have devoted large amounts of time and effort to your Society. I refer principally to Miya Miyamoto, Ben Kodama and T. Kazumura. These three have over the years given to you much in the way of help and experience by providing leadership and guidance. This would be true of any commercial orchid company. However, all of this too costs money in loss of time, participation, donation of plants and so forth. Quite obviously, such must be recovered somewhere.

To help you then understand why sometimes prices may seem high on certain orchid plants let me explain to you some facts that we have developed over the years on costs of marketing. As I told you our growers own our company. They dictate its policies. Therefore, we try not to make a profit on marketing - but rather to perform the service for our growers at least possible cost.

We know that to support orchid society functions, advertise, publish catalogues that supply information, promote Hawaiian Orchids that the cost to us for sales at retail to the orchid hobbyist will run 66-2/3% of the retail price. Therefore, if we sell an orchid plant for $3.00 - $2.00 of the three dollars we get was spent to develop a market to get that order, leaving $1.00 for the grower. Remember, this is an outright sale as opposed to 33-1/3%-40% consignment garden shop sale. In garden shop sales where outright purchase was in effect cost would be a minimum of 100%. Thus we save our growers 40%.

This then brings us to the point of growing cost. This is a very flexible thing and much depends upon volume, methods and many other factors. We have however found that it costs with a reasonable profit to the grower $1.00 per year to grow a plant minimum. Thus, if it takes say, 5-6 years to get a V. Nellie Morley into a fine specimen plant, the cost of production would be $5.00-$6.00 per plant minimum. To promote proper sales for it will cost twice that much. The cheapest anyone can afford to sell such a plant would be $15.00-$18.00 and make a modest profit - not a fortune.

Is it any wonder then that Hawaii is no longer famous for its Vandas? What happened to the thousands of Vandas one used to see in Hilo? The answer is a simple one. There was a mass over production, no market development, therefore plants were being sold for less than 1/3 of the price needed to make it pay. When this happens people stop growing plants. The few sales of V. Nellie Morley for high prices simply was a dream that exploded in the faces of many people. No great fortunes were ever made as predicted.

Let's look at the current situation in Cattleya. As anyone knows the advent of Meristem has had a serious adverse effect on the price structure of selected plants. It is a pure and simple matter again of over production. The value of any commodity depends entirely on supply and demand. When there were only a few plants of Blc. Norman's Bay 'Low' or Slc. Anzac 'Orchidhurst' around you could get from a few people a very good price for such plants. However, with meristem they now are being reproduced by the thousands - so their value has dropped to a fraction of their former price. It would be the same thing as if you had some stock of say, Dillingham Corporation worth $50.00

a share - and then a process was legalized to print and sell shares of it any price - then what would be the value of yours? Nil.

Meristem plants will eventually be the same price as seedlings unless they are clones that the owner owns, exclusively, produces in controlled numbers and then markets them accordingly, probably holding a patent on the clone for protection.

So you can see that for the commercial grower to support Orchid Societies and to try and help promote orchids does cost money. Such money must come from the price he gets for his product. Thus, if any one here tonight has, as I stated in the beginning, ideas of growing Orchids for profit be prepared to face facts. To sell, you must promote, to promote costs money - and that money must come from what you get in your sales price. The simple process of making crosses, germinating a lot of seedlings, and then hoping the world will beat a path to your door simply will not happen. People elsewhere in the world do not know our plants, names are foreign to them, we have to spend the money to tell the story. Promotion and market development are the big needs.

This brings me to the last category of Plant Sales: Selling to Commercial Growers. It is true Hawaii has a unique climate to grow fine orchid plants. However, there are few people in Hawaii that have a knowledge of what it is that the commercial cut flower grower needs or wants in orchid plants. Most of our knowledge is geared to the hobbyist.

He is not interested in plants of award quality that produce only a few fine flowers. He has his own standards based on quality, production, growth habit of plant, season of flowering, many factors that most people never consider when making a cross. He is a good business man or he can't survive.

To sell to the commercial cut flower grower you have to be able to give him what he wants - at a price that he can afford, which has to be less than it would cost him to grow the stock himself. If he can do it for less he won't buy outside.

Furthermore, meristem probably will be of greater advantage to the cut flower grower than anyone else. He will probably in the future only grow a very few clones, as he now does in Roses, Carnations, or other crops. These varieties must be tested, proven, and in the future probably will be patented varieties. Thus, if anyone has dreams of selling millions of seedlings to cut flower growers they might as well forget it. The future of the cut flower industry will be based on tried and proven varieties.

I believe we all face a challenge. Hawaii should have orchid plants in every garden. We should try to get thousands of our people to grow Orchids for fun and pleasure. If, by cooperation - the Orchid Industry and the Orchid Societies strive toward this goal we will all benefit. It is my sincere belief that great stress should be made by everyone involved in orchids to create among the man on the street greater knowledge of the fact that growing Orchids can be fun. It is a wonderful hobby - but don't expect to do it to make a fortune. To date, I still have to meet the first person I know that has become rich selling orchid plants. I have met thousands that were richly rewarded by the therapy of growing them for fun. Let us all put our efforts into expanding this therapy to others.

WM. KIRCH

Honolulu Orchid Society
May 9, 1967

Wm. Kirch-Orchids, Ltd.[61]

"Orchids - Direct from Hawaii - Nature's Greenhouse," lists 371 species and hybrids in their 1960 catalogue. Under 27 groups the interesting orchids are classified. There are: 82 large flowered Cattleya type hybrids, 36 small flowered cluster type Cattleya, 13 Epi-Cattleya type crosses, 13 Bulbous Epidendrum hybrids, 13 reed stem Epidendrum crosses, 12 Diacrium crosses, 18 Schomburghkia hybrids, 5 Broughtonia hybrids, 11 terete Brassovola crosses, 37 Cypripedium hybrids, 4 white Cypripediums, 7 Cypripedium species, 3 Selenepediums, 10 Miltonias, 14 Miltonidiums (Miltonia x Oncidium), 2 Milpasias (Miltonia x Aspasia), 7 Miltassia (Miltonia x Brassia), Brapasia (Brassia x Aspasia), 10 miniature Oncidiums, 8 miniature Oncidiums mounted on logs, 18 large growing Oncidiums, 14 Bracidiums (Brassia x Oncidium), 3 Odontonias (Odontoglossum x Miltonia), 6 Brassias, 11 other intergeneric Oncidium type crosses, 2 new novelty Phalaenopsis crosses, and 10 unusual species and hybrids.

Unusual bigeneric crosses promise many surprise for the growers and are rapidly becoming very popular.

Hiroses Nurseries, Hilo

by W. W. G. Moir [62]

Probably no nurseryman and orchid grower in Hawaii was as widely known as Y. Hirose of the Hirose Nurseries of Hilo. His untimely death recently is a great loss to orchid lovers. Back in 1927 he established the first commercial nursery in Hilo. He soon had a good plant rental business and branched out into ornamentals, begonias, anthuriums, bonsai plants, philodendrons and numerous other plants.

By 1930 the desire to branch out into orchids resulted in his first purchases. He scanned every catalogue he could lay his hands on and started ordering species available in many genera. He would go down the alphabetical list of names, and as money would permit, get one by one.

By 1933 he flasked his first orchid cross. Some of his registrations in this work were C. Kilauea, C. Hiwahiwa, C. Onaona, C. Pua Liilii, Lc. Mem. Dr. E. Yoshimura, Lc. Kaumana, Lc. Puiwa, Lc. Nuiwale, Bc. Nanipuakea, Cym. Hanalei, Den. Eleu, Epi. Nani Hawaii and V. Ohuohu.

In 1942 he started shipping flowers and plants by air. The nursery still continues doing this. Today the nursery is one of the "stops" on the tourist route thru Hilo. Almost every day one can see a group of tourists in the flower shop getting boxes of orchid corsages, anthuriums and other material to take home with them to the mainland.

Much credit for the creation of the 80 cent United States airmail stamp, which pictures Diamond Head and is in orchid lavender color, goes to Mr. Hirose. Early in 1951 Mr. Hirose had written the Postmaster General Jesse M. Donaldson suggesting the 80 cent stamp for the convenience of flower and plant shippers by airmail, the rate being 80 cents per pound. Later that year Mr. Donaldson visited Hilo and Mr. Hirose again discussed the matter. On March 26, 1952 the stamp was issued but its first day sale was in Honolulu, much to the disappointment of Mr. Hirose. Mr. Hirose was invited to Honolulu to participate in the ceremonies connected with the first day sale.

On the accompanying pages we show you pictures of the Hirose Nurseries lath houses and garden. The picture with Mr. Hirose in it is of the glass house where blooming plants are on exhibit for tourist view and sale. You will please note from these pictures the interest in other plants besides orchids. As one wanders thru these houses, ducking under the hanging pots of orchids and in and out among the anthuriums, Cypripediums, and many creeping and dwarf growing plants. However, the only thing foreign to the picture is the hanging clay pots. If these had been branches of trees covered with orchids the setting would have been complete for a jungle scene.

The plant rental business was transferred to a brother a number of years ago and only flowers and plants are handled by the Nursery. Only a true orchid lover could really appreciate the collection of varied genera and their hybrids found tucked away here and there among the other plants. Like nearly all commercial growers he longed to have more of them but fully realized that the profits came from the standardized demands of the public for something large, round and of a flashy color. However, he longed for the day when the

public demand would be for these interesting botanicals.

We who knew Mr. Hirose over the many years of his endeavors have a great deal of respect for him and what he had done in this field of plant growing. To his wife, Tomi, and family we wish to show our admiration for the way they have carried on the business when Mr. Hirose was incapacitated during periods of ill health. We extend to them our deepest sympathies. We also wish them continued success in the business.

A Visit to Richella Orchids[63]

Nestled in the hills of Pauoa Valley at 2881 Booth Road is Richella Orchids which has been located here since 1950. Richard and Stella Mizuta started growing orchids as a hobby in 1946. It was only natural that it should become a full-time venture when Richard retired from the Department of Education of the State of Hawaii after many years of service.

A wide assortment of orchids are grown at Richella. Richard and Stella have gained an outstanding reputation as hybridizers which accounts for their tremendous business with compots, a large percentage being exported. Facilities on site include those for germination of seed and production of mericlones.

The Kodamas
Pioneer Hawaiian Commercial Growers

by Philip T. S. Ho [64]

When Takami Kodama first arrived in Hawaii from Japan around the turn of the century, the cultivation of orchids was still a rich man's hobby. Despite this, Takami's recently-acquired penchant for orchids, especially Cattleyas, led him to invest much of his hard-earned savings in prize plants. Recognizing that he could ill-afford to continue his highly expensive purchases of plants indefinitely, he dreamed of being the first Oriental to open an orchid nursery in Hawaii. His hope was to breed and produce his own plants and hopefully, some day, make orchids available to everyone who enjoyed their beauty. He vowed that when he had successfully established his orchid nursery business, his company philosophy would be "To provide reasonably priced, quality orchid plants to everyone who loves plants and flowers."

In the ensuing years, Takami and his wife, Yoshiko, worked diligently to improve their orchid inventory and expand their nursery facilities. Takami also studied hard to unlock the many secrets of orchid genetics, hybridization, germination and large quantities of community pots and seedling thumb-pots. Soon he was able to sell his seedlings to the Kress Store in Honolulu for the unbelievable price of fifty cents each. This quickly transformed the "rich man's hobby" into the "poor man's past-time" for many of Hawaii's residents, and is considered by many pioneer orchidists to be the impetus in popularizing orchid growing in Hawaii.

As his business rapidly expanded, Takami Kodama purchased a large parcel of land. However, World War II intervened before the move could be made. But immediately following the war, the new nursery was established. Unfortunately, at the juncture when his dreams of success and recognition were about to be realized, Takami Kodama unexpectedly fell critically ill and passed away on July 28, 1947 at the age of 54. His untimely demise suddenly left Yoshiko Kodama with the enormous responsibility of managing and operating a thriving orchid nursery. By sheer dint and courage, the young widow set about to bring her beloved husband's dream to fruition. With the help of many friends in the orchid community, her seven children and especially Frank Tatsumura, the nursery's head grower, she labored long and tirelessly to increase production and improve the nursery's inventory of plants. Upon completion of his World War II military duty, her son Ben Kodama matriculated at the University of Hawaii and subsequently graduated from the School of Tropical Agriculture and Horticulture with a Bachelor of Science degree. Ben agreed to assist his mother in the active management and operation of the nursery.

In 1964, the Kodama Orchid Nursery moved to its present location, a four and one-half acre site in Waianae, Hawaii. The nursery facilities today consist of seven structures, two are covered with shade cloth which blocks out as much sunlight as is necessary. However, the needs of individual orchids vary, and these are met as much as possible. Yet in spite of the need to assiduously determine the proper conditions suitable to the effective culture of different types of orchids, there are certain basic cultural conditions and procedures followed by the Kodama Orchid Nursery which have proven extremely successful over the years of its existence.

Since a large part of the Kodama Orchid Nursery plant inventory consists of seedlings in community pots, much attention is devoted to their care and cultivation. The Filon/glass-covered greenhouses for community-pot seedlings are constructed to provide ample ventilation and air circulation. Benches are constructed with wire-mesh base and stand at least three feet above the greenhouse floor to provide for optimum air circulation and aeration of the plants. The three-inch clay pots in which the fragile orchid seedlings are planted rest on the wire mesh in a well ventilated area which provides ample oxygen and carbon dioxide for good plant growth. To accelerate plant growth, a fluorescent light system with a timer device to provide 16 hours of light each day is installed 18 inches over community pots. Westinghouse "Agro-Lite" and Vita Lite "Duro-lite" fixtures provide the red- and blue-light spectrums necessary for ideal plant growth. Although, as previously mentioned, the Waianae area is blessed with 10 to 12 hours of bright, warm light daily for most of the year, Ben has found that 16 hours of light per day greatly increases plant growth - as much as 20% to 30%. In addition to accelerated plant growth, the additional light hours induces additional photosynthesis which leads to the development of succulent, healthy leaves and vigorous root action.

The community-pot orchid seedlings are planted in 3-inch clay pots which are preferred over plastic pots or flats because of their porosity and good drainage. Plant media consists of 80% coarse Canadian peat and sphagnum moss mixed with 20% coarse Perlite. The mixture is soaked in a solution of Tersan fungicide and water (2 tablespoons Tersan to 1 gallon water) for about half an hour. It is then squeezed to remove the water and subsequently fluffed into the 3-inch clay pots, which have been filled with drainage material. Broken crockery, gravel, crush-rock, charcoal, and so on, may be used as drainage material, but Ben prefers the light styrofoam bits used as packing material because of its ready availability in large quantities.

With the exception of flat-leaf-type orchid seedlings such as Phalaenopsis, seedlings from flask are usually transplanted into community pots when they are about one inch or taller and have developed sufficient roots. The seedlings are planted with a pointed wooden instrument such as a pencil, piece of chopstick, or any piece of wood which has been sharpened in a pencil sharpener. About 20 to 25 seedlings may be planted in a 3-inch clay pot by simply using the pointed stick to dig uniformly spaced holes in the peat moss and Perlite mixture. Care must be taken to ensure that only the roots of the seedlings are buried and that the base of the seedling is not planted below the media. It is equally important to be sure that the media is kept fluffy during the planting process so as to provide aeration for the young roots, as well as to minimize "damping off" of the young seedlings.

Large seedlings from community pots are individually transplanted to 2-inch clay pots when they are 2 to 3 inches in size. While a variety of media is used for planting of individual seedlings and large plants (i.e., charcoal, firbark, crushed rock, volcanic cinders, coconut fiber, etc.), Ben prefers to grow most of his plants in Hawaiian tree fern fiber (hapuu). The fibrous fern provides good aeration and drainage while anchoring the plant securely in the pot without need for stakes or other propping devices. While shredded tree fern fibers are available commercially, Ben prefers to purchase large tree fern chunks which he soaks and cuts to the size desired with a carpenter's bandsaw. The chunk sections are then fed into a shredding machine which separates the fibers. These fibers are screened in a 1/8-inch wire-mesh box to remove the fiber dust and particles. They are subsequently washed so that the fibers will

last longer and provide better drainage. As with the planting of community pots, good drainage is highly essential. Here Ben uses broken pieces of crockery at the bottom of the pot, instead of styrofoam bits. Like fir bark, tree fern fiber also decomposes in about two to three years, but unlike fir bark, it does not require extra nitrogen. Furthermore, with year-around sunlight, good air circulation, high heat levels and consistent cultural practices (i.e., fertilization, watering, spraying of insecticides and fungicides), most orchid plants thrive in tree fern fiber.

As has been noted, since the Waianae area is hot and dry, most of the orchid plants are watered lightly with a nozzle-type spray daily during the morning hours. This daily morning watering schedule permits the plants to dry out by evening, especially the larger plants which are grown under 67% polypropylene-fiber shadecloth. This shadecloth provides ample air circulation and ventilation to dry out the plants. Daily watering in a hot, dry area such as Waianae creates another important condition for good orchid culture - high humidity at the levels which pervade the rain jungles from which many orchid species originate. Light watering of orchid plants daily creates about 50 to 60% relative humidity, but during periods of intense dryness and heat, the walkways and surrounding hothouse areas are also watered down to increase the level of relative humidity. While plants are watered daily, a continuous effort is made to avoid overwatering, since it is so easy to do so. Plants are scrutinized frequently to detect signs of overwatering, such as soggy, dark colored or mossy media. Additionally, plants which require a "rest period", such as Dendrobium nobile types, are separated to ensure that they are not overwatered during their state of rest. However, once a month, where appropriate, the plants are drenched heavily to "refresh" the root system and tree fern fibers, as well as to remove or leach out as much fertilizer salts as possible.

Since orchid plants are largely composed of water, they do not require copious amounts of fertilizer as generally believed by all too many orchid hobbyists. With this in mind, fertilization practices at the Kodama Orchid Nursery are aimed at using fertilizers to supplement or enhance the natural growth process brought about through other more important factors such as adequate sunlight, air circulation, humidity, etc. The smaller plants and community pots are fertilized with a diluted 20-20-20 balanced fertilizer while the mature plants are fed a 15-30-15 fertilizer every two weeks. These food formulas seem to be compatible with the media used (peat moss and Perlite or tree fern fiber). Additionally, they seem to be effective for a wide range of orchid hybrids and species, which is especially important in view of the huge inventory involved. Thus, there is no need to determine what type of fertilizer should be used for each type of orchid plant every two weeks. The decision is reduced to two fertilizers: 20-20-20 for small plants and community pots, and 15-30-15 for mature plants. In spite of relatively light fertilization, the plants are heavily watered once a month to leach out harmful fertilizer salts.

It has been contended that the bane of farmers the world over is insects, and Hawaii is no exception. Insects abound in a tropical climate and reproduce in great numbers if not controlled or eradicated. Therefore, it is imperative to adhere to a rigorous schedule of spraying to keep insect populations under control. The problem of insect control is compounded because insects and other pests often develop an immunity to insecticides after prolonged exposure. Accordingly, insecticides are alternated so that insects will not acquire an immunity to one type of insecticide. To control the general insect population, wettable-powder insecticides such as Diazinon 50W are used for one month

followed by the use of Sevin 50W for the next month. Certain types of insects require special insecticides. For instance, Kelthane 35W is used to combat mites which proliferate especially during the hot summer months. In view of the invisible dangers to physical health inherent in the application of insecticides, extreme care is taken to follow the precautionary instructions on the label of each insecticide container, as well as to wear the protective apparel and accessories necessary.

Although insects constitute a constant and continuous problem, fungus and bacterial diseases are minimal because of the low rainfall in the Waianae area. However, the peat moss used in community pots is soaked in Tersan to prevent or minimize fungus root problems and the damping off of seedlings. Dithane M-45 is used for any fungus leaf problems which may develop. Proper watering practices and cleanliness also help to minimize fungus and bacterial outbreaks.

In summing up his cultural practices, Ben Kodama considers proper sunlight, adequate air circulation, sufficient humidity and good drainage to be essential ingredients to the cultivation of vigorous, healthy and floriferous orchid plants. This does not imply that fertilization, insect control, watering practices, type of media, etc. are unimportant. He feels they are important and should be carefully considered for the different types of orchid plants and the microclimates involved. However, Ben contends that without the former set of factors, orchid plants - hardy and adaptable though they may be - would not flourish as well as they should.

Today, under Ben Kodama's management, the company's business philosophy as set forth by his father: "To provide reasonably priced, quality orchids to those who love plants and flowers." continues to be the cornerstone of the nursery's successful operations. However, over the years the emphasis on plant inventory has shifted from mature Cattleyas and Cattleya cut-flowers to community pots and seedlings of many different hybrids and species. The continuous shift in the focus of the nursery's orchid inventory is explained by Ben in this manner: "Orchids are like women's fashions; they change with the seasons and the times. Although Cattleyas have a special appeal for me, I like and appreciate all types of orchids. So to the extent possible, I try to predict and produce what the orchid hobbyist will also like. Because Hawaii's climate is so favorable, I can mass produce and grow large quantities of various type orchids at minimum expense. By keeping plant costs and overhead costs to bare essentials, I can continue to follow my father's philosophy of providing reasonably priced, quality orchid plants to all orchid lovers."

Currently, Ben is concentrating on smaller, compact, cluster-type plants which are in great demand, especially in the United States and other countries where limited space and high winter energy costs are decisive factors. However, in the tropical countries where energy costs are not a factor and orchid cut-flowers are growing in importance as an export commodity, Ben continues to receive orders for seedlings and community pots of all varieties. Presently, there is also considerable "Splash-Petal Cattleyas - Colorful Clowns of the Orchid World" beginning on page 1233 of the November 1980 issue of the A.O.S. Bulletin. The improved varieties of Den. Jaquelyn Thomas in several shades of white, lavender, two-tone lavender-white and burgundy red, also continue to be in popular demand as orchid farmers throughout the Pacific basin discover the hardiness and floriferousness of these hybrids developed by the University of Hawaii. Intergeneric hybrids, especially of the smaller, compact

types, are another trend which is rapidly materializing. Ben observes that the many years of work and experimentation done by pioneer intergeneric hybridists such as W. W. Goodale Moir of Hawaii, Robert Dugger of California, Milton O. Carpenter of Florida and others have resulted in the development of attractive, leafy plants with colorful spray-type blossoms which can grow well in a wide range of climates. Like the short skirts or high hemline which are reputed to be making a "comeback" in the ladies' fashions, Ben notes a marked interest in Phalaenopsis hybrids, especially dark, heavy substance pinks, reds or yellows. As a final observation, Ben strongly feels that the various American Orchid Society Bulletin articles contribute significantly to the "discovery" and subsequent popularity of various species and hybrids by orchid fanciers.

Today, Kodama Orchid Nursery is entirely family-operated since the demise of its head-grower, Frank Tatsumura, in 1977. Mrs. Kodama, the matriarch of the family at age 85, still patiently plants all of the many thousands of seedling community pots produced annually. Her eldest daughter, Mrs. Emily Nishimura, sows the orchid seed pods and reflasks the thousands of flasks required by the nursery to meet the continuously increasing demand for new hybrids of exceptional quality. Ben's wife, Florence, tends tirelessly to the day-to-day chores of watering, spraying and planting seedlings, as well as to the selecting, packing and packaging of plants to fill the constant backlog of orders. Finally, Ben Kodama, Jr., who like his father is also a graduate of the University of Hawaii, has been undergoing extensive training in all aspects of the nursery. Thus, three generations of Kodamas keep the dream of the nursery's founder alive and flourishing. - 1020 Valley View Drive, Honolulu, Hawaii 96819

A Visit with the Yamadas

by Toy Len Chang [65]

Some people call him Padre while others address him simply as Reverend. Besides leading people along the way of Christianity for many years, he has had a firm influence on the Hawaiian orchid scene for equally as long.

As a young boy of 13 on Kauai, Rev. Masao Yamada first saw Cattleya Enid and was captivated by the beauty of the flower. Orchids at that time were not plentiful and only a few wealthy people could afford to keep them as a hobby.

After attending the University of Hawaii in the late 20's Reverend Yamada thought seriously about growing orchids. While working on the Big Island in Honomu, he met some of the Hawaii orchidists among whom was Y. Hirose of the well-known Hirose Nursery. Through this contact, he acquired three Japanese Cymbidium plants. He also tried his first compot of Cattleyas which cost $3.50, but his attempt to nurture the plants failed.

While studying at the seminary his interest in orchids continued and he read much about the intricacies of orchid cultivation getting more fascinated as he read.

On a more permanent assignment to Kauai, he acquired a greater variety of orchids and fostered an increased interest in their growth. He also got others interested in orchids and they even sponsored an orchid show.

With encouragement from Rokuro Urata of the Hawaii Sugar Planters' Association Experiment Station, who was then president of the Honolulu Orchid Society, the Reverend became seriously interested in propagation of orchids from seeds. Fortified with a lecture by the visiting Dr. E. A. White on orchid seed germination, he experimented in 1940 and had good results.

World War II however disrupted further orchid activities and experiments for a while.

In 1946, the good Reverend moved to Hilo, orchid center of Hawaii, where he resumed experimenting with seed germination media. This resulted in his "Simplified Formula" utilizing ordinary kitchen tools. The Yamada formula became well known.

Experiments in seed germination of paphiopedilum were successful leading to green pod culture or embryo culture in 1948, his results were excellent although others encountered problems.

Meanwhile classes in orchid seed germination were offered under the University of Hawaii Smith Hughes Extension Program launching the "revolution" in new vandaceous hybrids in Hawaii. The orchid seed germination formula was published in 1948 in the first issue of the Hawaii Orchid Society Bulletin, exposing many orchidists to his method of germination.

Always experimenting and trying new methods and materials, Reverend Yamada was among the first to use coconut water in germinating orchid seeds.

After moving to Honolulu in 1955, the Reverend eventually became Chairman of the first Hawaii Regional Judging Committee of the American Orchid Society. The Orchid Growers' Association was instrumental in bringing in Regional Judging.

At the Second World Orchid Conference which was held in Honolulu in 1957, Reverend Yamada presented a paper, "Cypripedium Seed Germination." He has presented other papers and written many articles besides lecturing.

Having the opportunity to travel quite a bit, Reverend Yamada collected fine Cattleyas of which he has a special fondness and good stud plants.

Because of his valuable contributions over the years and impressive background, a visit to the Reverend's was long overdue. Editor Yoneo Sagawa and I went to pay this visit.

Walking past a loudly barking Winky to the orchid area in the back of the house, every inch of space was visibly packed with orchids, large and small. Roots of some plants were in and out of neighboring pots and mentally I groaned - what a job it would be if I had to separate them for repotting. However, the plants seemed contented and thriving well with many beautiful blooms.

I learned that 80% of these plants were the Reverend's own hybrids. Also, with such a large collection, it was definitely a "Poppa-Momma" enterprise (from my observation).

Ai Yamada enthusiastically stated that it was a real challenge to create something new. She found embryo culture most exciting and with green pod culture, it was possible to get seedlings in 4 months. With the Reverend's wide knowledge of germination, there would be the thrill of something new frequently. However, they did learn by trial and error. I can still recall the lecture Reverend Yamada gave years ago at Agee Hall when he described how he would sit in a rocking chair shaking his bottle of solution and seeds thinking of his sermons.

Generally, for potting media, two sizes of blue rock gravel were used. Smaller ones for small plants and larger ones for bigger plants. Occasionally cinder was substituted if there was no gravel on hand. Spraying was done every ten days.

The Reverend took great pride in pointing out his C. bowringiana 'Splendens' which travelled a great distance, round-about before he acquired the first plant. As the story goes - it started out at the Missouri Botanical Garden in St. Louis, but was unavailable when he sought it. Finally a plant was located in France and was acquired by happy trading. This plant has given him much pleasure over the years with beautiful flowers for hybridizing.

Despite this warn dry area, with the help of cool breezes, there were many tropical Miltonias in profuse bloom, and seemed well adjusted to the location. For variety there were many blooming African violets under the crowded benches. These are used for bazaars and charitable fund-raising projects.

One section of the orchid area, out in open sun was filled with blooming Den. Jaquelyn Thomas plants of the popular U.H. #44 variety. These provide cut

flowers and frequently those lovely Dendrobium leis.

There were many Cattleyas, Ascocendas, Paphiopedilums, and Oncidiums in bloom. A beautiful sight.

As we moved through the greenhouse we came to a very narrow opening between the end of the wire fence and the corner of the house. Petite Ai Yamada slipped through easily, Editor Yoneo Sagawa also had no difficulty. I hesitated with a vision of being stuck there. Reverend Yamada, right behind me soothingly said, "You can make it, you can make it." So - "mmf!" I strained momentarily and made it by taking a deep breath. I can now understand the Reverend's success with orchids - positive thinking with a will. "Faith" is the word.

What one can do with so many beautiful flowers around? The Yamadas enjoy them indoors also. Arranging them is an added pleasure as well as a challenge for Ai Yamada and she does this artistically.

When asked by Editor Yoneo Sagawa to pinpoint the highlight of his orchid career, Reverend Yamada paused thoughtfully then beamingly indicated that receiving an Award of Recognition for Meritorious Service to the Orchid World from the Orchid Digest Corporation in 1976 was it. This honor was well deserved. Another honor was given in his appointment several years ago as a Senior Judge for the American Orchid Society in the Hawaii Region. Presently he is the only one with this status in Hawaii.

Although retired since 1973, the Reverend is busier that ever with his extensive collection and activities. He is happy to have more time with his plants.

The orchid flasks set in his living room attest to his all-around activity with orchid propagation and culture. Indeed, it is a "start to finish" endeavor, by one who loves to more than "putter" and he has shared his know-how generously.

The "Orchid Grower"s Orchid Grower'

by George West [66]
Star-Bulletin Writer

On a 10,000-square-foot lot at the foot of the Koolaus in Kaneohe lies one of the most beauteous orchid collections in the State.

Its owner is Wilbur A. Chang, a trim, mild-mannered man whose name strikes a responsive chord wherever orchid hobbyists gather.

His joyous way of spreading his knowledge of orchid culture - gained in 19 years of growing orchids - keeps him in demand as a speaker on orchid growing for the hobbyist. As far as they are concerned, he is the "orchid grower's orchid grower." His friends say that when it comes to orchid grooming, he has no peer.

Chang, who earns his living as a foreman in the Honolulu Post Office's main branch at the airport, is one of about 10,000 orchid fanciers in the Islands.

Chang's interest in orchids began in February, 1958, when he bought a plant as a birthday gift for his wife. It was a V. Gilbert Triboulet, he remembered. He found himself wanting to know about how to grow and care for it. And that was when the bug bit him, but good.

There followed more purchases of orchids as gifts to his wife and relatives. Today Chang has in his green houses and yard of his home on William Henry Road more than 5,000 plants and between 8,000 and 10,000 seedlings.

Of course not all of the plants were acquired through purchases. The collection grew from his own propagation activities, as gifts from friends and through exchanges with other growers.

Chang believes his collection also contains the largest collection of orchid species in the State. He has Rhyncostylis from Thailand, Dendrobiums from Japan and India, Bulbophyllum from Australia and other species from Brazil, Peru, Africa, Madagascar and the Philippines.

Pressed as to the exact number of his species, he said, "I've never counted them. But I'm certain I have the biggest collection."

In the total collection are the popular Cattleya, Vanda, Dendrobium, Phalaenopsis, Oncidium, Epidendrum, Miltonia, Paphiopedilum, Ascocenda and the "unusuals" such as his Trgl. brachiata, a six-foot-tall plant with spectacular, chocolate-colored blooms that dangle from the top.

The plant has won the Honolulu Orchid Society's best of specimen award three times in the annual shows of 1973, 1975 and 1976.

The Trichoglottis has been an eye catcher consistently, its 600 or more flowers at each showing drawing exclamations and admiration.

Of his vast assemblage of orchids, does he have any that he especially adores?

I don't have any favorites," Chang said. "I like them all. I find it hard to make comparisons. Each plant has its own beauty and attraction."

The genera in the greatest number at his orchid ranch are the Dendrobiums, Cattleyas and the Vandas, in that order.

Chang is also a breeder. But he does not do any germinating of seeds. He sends them to professionals who make a business of germinating seeds. He has registered one plant from his production of hybrids. It is the Lc. Elizabeth Chang, named after his wife.

The orchid is an offspring of the cross between the Lc. Eleanor, the Lc. Mary Alma Kirk and the Lc. Amber Glow.

Once a cross has been registered with the Royal Horticultural Society in England, all future crosses using the same plants that Chang used must be named the Lc. Elizabeth Chang. The system prevents confusion and enhances the hybrids value.

Chang, incidently, is an accredited judge with the Honolulu Orchid Society and a student judge of the American Orchid Society. This society conducts orchid judging on the fourth Sunday of each month at the Foster Botanic Garden here.

Chang has 10 plants that have won awards from the Honolulu and American orchid societies. These are plants he grew and cared for himself. Many plants that he gave to friends also have won awards during the years.

Chang's recommendations for the beginner in orchid culture?

"Perhaps the most important fundamental is mastering the art of watering," he said. He stressed that overwatering has killed many plants. He has had the sickening experience of seeing valuable plants die from too much water. Overwatering causes fungus infection and rot.

"Yet," Chang said, "orchids are easy to grow. They are the hardiest of plants and can take a lot of abuse and still survive. They will show you signs when they are sick."

Chang said orchid growing is gaining popularity all over the world. Flowers and plants are in great demand.

Besides being a pleasant hobby, Chang said orchid buffs are among the friendliest people you can find.

He tenderly lifted a Den. arachnites, a plant with tiny, exquisite blooms from Japan, and said:

"Once when I was in Oklahoma, I called a few of the orchid societies listed in the yearbook of the American Orchid Society and asked to see how they grew orchids."

"The responses were beyond expectations. They were happy to show me around. They even came to pick me up, me, a complete stranger to them."

The Fabulous Vanda Sanderana 'Kono'

by Dr. T. David Woo [67]

I first encountered this remarkable orchid personage, Mr. Takumi Kono of Hilo in the early 1950's, as an orchid novice myself. In addition to collecting some seedlings from his famous line of V. sanderana, we enjoyed associations in the orchid society activities of the day. I find him a most humble, unassuming and highly cooperative individual in his successful avocation. However, any history of orchid culture in Hawaii will be incomplete without a page devoted to his spectacular and astounding accomplishments in this field.

After graduating from the University of Hawaii as an Agriculturist, he went to work as a Field Assistant in Agriculture Education in the Department of Public Education. This blended well with his training and interests in Horticulture. The new orchid industry was in its infancy at the time and Mr. Kono was involved in its growth.

His father, the elder Kono, was a retired sugar cane planter, more interested in Bonsai culture and in Japanese landscaping. He was a crony of Mr. Hirose and the only orchids he cultivated were Cymbidium species, more for their leafy accompaniment.

Takumi obtained his first Vanda seedlings together with Mr. Bill Moir when they imported an order from the Philippines. From this origin of "babies" resulted the famous line of V. 'Kono Sands'. Perhaps only a few orchid growers realize that in our midst today, there is an individual who single-handedly obtained five (5) First Class Certificates (FCC's) for his efforts.

For the record, I am listing his accomplishments for anyone to shoot at:

1. V. sanderana var. Kono #4, FCC, 91 pts., Miami, FL., Feb. 22, 1952.
2. V. sanderana var. Hawaii #8, FCC, 91 pts., New York, NY, May 26, 1954.
3. V. sanderana var. Kono #3, FCC, 94 pts., New York, NY, June 25, 1952.
4. V. sanderana var. Kiliwechi #7, FCC, 98 pts., New York, NY, Sept. 24, 1952.
5. V. sanderana var. Emogene #1, FCC, 93 pts., New York, NY, Dec. 16, 1953.

On top of all these, he has AM Awards on seven other V. sanderanas and three other Vanda hybrids. He was given a Certificate of Honor for a cut Vanda display at the First World Orchid Conference held in St. Louis, MO, on Oct. 15-17, 1954. His shelves are filled with 36 Silver Trophies from National and International Orchid Shows awarded in his time.

His fame and expertise spread throughout the world and he entertained a prestigious array of early orchid officials in his Japanese garden at Kaumana in Hilo Town. Takumi's whole collection was limited by the extent of his backyard area, where he specialized in V. sanderana, naturally. His able wife, Emogene, assisted him in the complexities of germination, transplanting, and propagating the popular hobby.

An incident on one occasion, when I visited Takumi's Nursery was interesting to record. All of a sudden, a loud order resounded - "Bumble Bee!" Immediately, I saw Takumi bounding out with a Butterfly net, much like an Entomologist on safari, sans the pith helmet and safari suit, of course. With an

expert twist, Takumi captured the black buzzing culprit and deftly stamped the insect to smithereens. You see, with many inviting stumps of tree fern and many redwood laths in his greenhouse, colonies of bumble bees would be a natural accompaniment and competitor to the natural insect fertilizers of his blooms to create a disastrous outcome.

I did see several light-colored and greenish-white V. sanderanas in bloom, but then, the rage was for the dark orange-red variety at the time. It was only after a decade that the 'alba' variety came to occupy its rightful niche.

Mr. Takumi Kono was invited to be a speaker on the panel at the First World Orchid Congress in St. Louis, MO, USA on Oct. 15-17, 1954. I enclose a page copy of the program for the interested.

The Konos have done their share of traveling and saw orchids in bloom in many corners of the world since retirement. More recently, Takumi reported that he had donated the last of his orchid collection to the University of Hawaii, Hilo Branch, where the Horticulture Department will ably propagate the famous V. 'Kono Sands' for future generations to enjoy in his home town of Hilo, Hawaii, USA.

Meet Mr. Takumi Kono someday at the popular golf courses on Hawaii and he might have a discourse on the beautiful King of Vandas to spike your interest and knowledge of the Orchid.

Jan. 16, 1984

National Acclaim Comes to Hilo Orchid Grower [68]

National recognition to one of Hilo's best known orchid growers has come to Takumi Kono, field assistant in agricultural education in the department of public instruction, in the form of an invitation to speak at the First World Orchid Conference.

The conference is scheduled for October 15-17 in St. Louis, MO, and is sponsored by the American Orchid Society with the cooperation of the Missouri Botanical Garden and the Orchid Society of Greater St. Louis.

Mr. Kono's invitation to speak on What Makes A Fine Vanda comes from Gordon Dillon, chairman of the program committee of the conference.

Mr. Kono's V. sanderanas have brought national fame to Hilo in that eight of his specimen blooms have won first class certificates - the top award - at various American Orchid Society exhibits in New York City since 1952. Three other blooms have won awards of merit, second place in the judging.

William Kirch, of Honolulu, is the only other islander who will appear on the St. Louis program. Mr. Kono is scheduled to speak at 10 a.m. October 15 at the Chase Hotel.

He will leave Hilo October 8 and travel to Kansas City, MO, where he will be an unofficial visitor at the national convention of the Future Farmers of America on October 11-13. He will go from there to St. Louis for the World Orchid Conference, then to Miami, FL, to confer with a number of growers and hobbyists with whom he has been carrying on orchid correspondence for a number of years.

Because of the Miami climate is about the same and is suited in the same type of orchids grown in Hawaii.

From Florida Mr. Kono will go to Washington, D.C. to take in the National Capital Orchid Show October 23-24, and thence to New York City where he has been invited to the monthly meeting and judging of the American Orchid Society on October 27.

Mr. Kono will exhibit blooms in St. Louis, Washington and New York.

He will return home early in November by way of Seattle and San Francisco.

Kono Wins 11 Awards in 3 Orchid Shows[69]

Takumi Kono, field assistant with the agricultural education division of Public Instruction in Hilo, has received 11 awards in three Mainland orchid shows this year.

During the Ninth Annual Florida-West Coast Orchid Show in St. Petersburg in January, Mr. Kono won four first place awards for the best spray-type orchids outside the continental United States; Den. phalaenopsis type; Dendrobium antelope type; and blue Vanda type. He also took second place awards for his Dendrobium antelope and lavender or pink vanda.

At the North Carolina Orchid Society show, held in Wilmington, North Caroline Feb. 1-3, Mr. Kono took three awards for Vanda orchids.

First place awards with silver trophies and blue ribbons went to Mr. Kono for his Dendrobium and vanda displays at the 13th Annual International Orchid Show of the South Florida Orchid Society in Miami Feb. 22 to 25.

Big Island Orchid Wins Highest Score Ever Awarded - 98 Points

by Harry Blickhahn [70]

The undisputed queen of orchids comes from Hilo, and her name is V. sanderana.

Takumi Kono, veteran orchidist, was notified in October by Gordon W. Dillon, executive secretary of the American Orchid Society that "It is my pleasure to inform you that the blooms of V. sanderana No. 7 arrived in excellent condition in New York City and were judged by American Orchid Society judges.

"They gave it the highest score yet to be given to any orchid flower - 98 points, an extremely high F.C.C. (First Class Certificate)."

V. sanderana has won herself many honors in many places, and Mr. Kono has a sheaf of letters from orchid specialists in widely scattered areas to prove it.

Twenty years ago, Mr. Kono became interested in orchids as a hobby. He said he was more or less "forced into it" because the late Dr. Y. Yoshimura, an early day orchid expert, gave him some plants. As a professional agriculturist, Mr. Kono found his interest in orchid raising intensifying as the years rolled by.

He learned orchid seed germination from both Y. Hirose, another old timer in the business, and Dr. Yoshimura.

"I combined the techniques I had learned and developed my own germination technique. This method has been taught to many present orchid germinators through the vocational agriculture adult courses in orchid culture. This course has been held many times in Hilo, Hakalau, Pahoa and some of the other outlying small communities."

Mr. Kono said his best V. sanderanas are results of Alex Anderson's seeds. Mr. Anderson is another kamaaina orchid devotee. These seeds were germinated in 1938, and Mr. Kono and Mr. Anderson each took half. The plants are now in their fifth year of flowering.

"I have found this difference between the jungle species of V. sanderana and our local species," Mr. Kono said. "Ours seem to grow the year around instead of the regular October blooming of the jungle V. sanderana.

"The native V. sanderana is from the Philippines, especially Mindanao. We had, a few months ago, a visitor from Mindanao who was very familiar with their home country V. sanderana. He was greatly surprised at the growth and size of plants here."

Mr. Kono has about 18 V. sanderana plants. The collection gives him year-around flowering and hence year-around seed production.

His interest is not confined to the lovely Vanda he has developed. His collection of about 2,000 orchids includes Cattleyas, Phalaenopsis, Dendrobiums

as well as various Vandas and anthurium.

"Other growers are taking an interest in getting awards for their flowers," Mr. Kono said. "It is not a difficult thing to do. But certain channeling and timing are important. I will be glad to give any of them information on how to go about this process of local preparation and mailing.

"I have cut these flowers early Saturday morning, packed them and had them inspected and mailed out in the morning hours, and then after that kept my fingers crossed for the flowers to reach New York in time for judging on their Wednesday night meeting. Letters all state the flowers arrived in perfect condition.

"So, the shipping longevity of V. sanderanas is very good.

"Commercially, V. sanderana flowers are tops. The reason that plants are scarce is because growers are reluctant to sell blooms, and we fear by selling and ultimate bargaining in price the flowers may be cheapened. We like to hold V. sanderana in highest esteem. It has been named by the old school growers as the queen of the Vandas, and this is justly so.

"It is the background of breeding, also; other types are bred from the V. sanderana, and presently all the larger and more desired Vanda hybrids have V. sanderana background. There is a long list of crosses.

"I have found that Honoluluans and orchid enthusiasts on the other islands can make the seeds and produce seedlings at their smallest stage more satisfactorily than we can in Hilo, but once the seedling is established, Hilo can outgrow any other island and produce far better flowers.

"Our annual orchid shows prove that. We have visitors from the other islands who marvel at the size of our plants, coloring of flowers and the big population in Vanda Plants, although a lot of remarkable crosses have been made in Honolulu.

"Yet in Hilo the climate for growing is more conducive; we have more space, our back yards are bigger.

"We have the natural growing media in the form of our valuable tree fern which is available only here for commercial use. However, more people in Honolulu are involved in orchid growing, there are more commercial establishments, and their hot, dry climate is very favorable to seedlings just out of the flask.

"The future may tell a different story because our growers are bringing seedlings to a bigger state in bottles and planting those seedlings directly to individual one-inch and 1-1/2-inch pots, rather than fight the elements by planting seedlings in community pots. Seedlings developed in bottles here are three and four inches high."

Mr. Kono, who is a vocational agriculturist in the department of public instruction, keeps up a voluminous, correspondence with orchid-minded individuals all over the country. Some of them have seen his collection here; others have had the urge to write to him after having seen his flowers at various mainland shows.

Kazumura Orchid Nursery [1]

Mr. Tadao Kazumura was born on July 11, 1902 in Lahaina, Maui. At an early age, he was sent to Japan where he received his education. Upon completion of his schooling, Mr. Kazumura returned to the Big Island where he worked as a salesman. He then moved to Honolulu to work for the Von-Hamm Young Company. After working there for some time, Mr. Kazumura left the company and went into partnership with the Lion Shoe Store. Later in 1948, he sold his partnership in the Lion Shoe Store to pursue his hobby of raising orchids.

He first started raising Den. superbum orchids, more commonly known as Honohono orchids, in a small lean-to at his residence in Liliha Court Lane. He later expanded his greenhouse by renting a vacant lot near his home. Here Mr. Kazumura raised Cattleya, Dendrobium, and Vanda orchids and started germinating orchid seeds. He learned germination by studying books from the United States and Japan and by talking with friends who also did orchid germination.

In 1954 Mr. Kazumura moved to the Judd Street location where he started the Kazumura Orchid Nursery. Because he did not have a laboratory to germinate his orchid seeds, Mr. Kazumura did it in his kitchen after dinner with his wife, Shizuko. He germinated crosses he made by himself and also by Mr. W. W. Goodale Moir and Mr. William Kirch. The beautiful equitant Oncidiums of today got their start from the crosses made by Mr. Moir and germinated and raised by Mr. Kazumura.

Mr. Kazumura made close to a hundred crosses in the Dendrobium group and a few Cattleya crosses. He was most noted for his creation of Slc. Naomi Kearns, as well as for his breeding of yellow Dendrobiums. The yellow chartreuse crosses were made for the cut-flower business. His goal was to produce plants that were floriferous (free blooming) and short in stature. Although his goal was not fully attained before retiring, he still continued his breeding program.

Mr. Kazumura was a member of the Wm. Kirch Orchids, Ltd. (a group of orchid growers) for nineteen years. He was also an orchid judge of the American Orchid Society and the Honolulu Orchid Society and a charter member of the Honolulu Orchid Society.

Mr. Kazumura passed away at the age of 80 on July 15, 1982.

My Hybridizing Activities

by Roy T. Fukumura [72]

In the spring of 1937, I saw 10 pots of Cattleyas at a friend's home. I thought they were unusual and began taking an interest in them. I had become a victim of "orchiditist".

Without seeing the flower, I purchased a C. trianaei for $3.00 which for me at that time was a substantial sum. Later, I purchased two Kodama Orchid Nursery seedlings for 50 cents each being sold at Kress Store in Wailuku. I began buying more plants as I began learning that there were many different kinds of orchids.

Realizing that I really couldn't afford to be spending so much on plant purchases, I began pondering the problem of increasing and improving my collection without spending too much money. This was the beginning of my hybridizing activities.

In 1940, I purchased a pressure cooker from Sears and using Reverend Yamada's media formula and with no PH meter, I sowed some Den. phalaenopsis seeds. The result was not outstanding but I was able to get some plants.

In 1941, I made the Den. Diamond Head Beauty (Den. bigibbum x Den. Sanders Crimson) flowering 200 plants of the approximately 1000 plants that I grew. The flowers were of poor quality so I destroyed the rest. I realized then the importance of the use of good stud plants in order to get good hybrids.

In 1946, I bought from H. Patterson of New Jersey, a Den. phalaenopsis schroederanum, var. Dixon strain. Then in 1948, I made the Den. Lady Constance (Den. Orchidwood x Den. schroederanum, var. Dixon strain).

Four years later, in 1952, selecting the best of the Den. Lady Constance, I crossed it with Den. schroederanum, var. Dixon strain to get Den. Helen Fukumura which had flowers of exceptional substance, rich color and beautiful shape. Its flowers was considered top quality and in tremendous demand by all hybridizers.

Using Den. Helen Fukumura as a parent, I made many different hybrids some of which are:

Den. Maui Beauty
(Den. Lady Hamilton x Den. Helen Fukumura)
Den. Maui Charm (Den. Lady Fay x Den. Helen Fukumura)
Den. Maui Queen (Den. Helen Fukumura x Den. Anouk)
Den. Lehua (Den. Lady Constance x Den. Helen Fukumura)

Besides the above crosses, I made the Den. Elaine (Den. Maui Beauty x Den. Shangri-La) whose flower in my opinion was as good if not better than that of Den. Helen Fukumura.

When I purchased the pressure cooker and became a serious orchid hobbyist, I never dreamt that a world acclaimed flower would be the result of my efforts. I was extremely lucky and fortunate that I learned at the very

beginning the necessity for using good stud plants in order to produce good hybrids.

My interest in Vandas began when I first saw the beautiful blue flower of the V. Rothschildiana.

At that time the island of Hawaii was the center of Vanda hybridizing and many outstanding Vanda hybrids came from there. The dream of the hybridizers was to create a round, flat shaped flower and three to four generations of V. sanderana were used as parents. The resulting hybrids were so good that hybridizers began to be less active in hybridizing big Vandas.

Consequently, in order to perpetuate the beautiful Vanda and to create inter-generic hybrids, I began using as parents Asctm. curvifolium, Asctm. miniatum and Rhy. coelestis to be crosses with Vanda hybrids.

Ascda. Yip Sum Wah (V. Pukele 'Dream City' x Asctm. curvifolium 'Dream City') was my first Ascocenda cross. It bloomed in 1965 in Kuala Lampur, Malaysia at the Yip Kee Garden, whose owner, Mr. Yip Sum Wah, registered the cross.

The first AOS award, an HCC was granted in October 1966 to Ascda. Yip Sum Wah 'Polka Dot' shown by Hajime Ono of Honolulu. From 1966 to 1972, AOS has awarded 26 HCC's, 18 AM's and since then has been continuously granting awards to this cross Ascda. Yip Sum Wah has become a plant desired by orchidist all over the world and is still in demand.

Using Ascda. Yip Sum Wah as a parent, I have been able to develop many beautiful hybrids like the following:

Ascda. Bicentennial
(Ascda. Bonanza x Ascda. Yip Sum Wah)
Ascda. Pink Doll
(V. Bill Sutton x Ascda. Yip Sum Wah 'Kepaniwai')

As the hybridizer of this cross, I am deeply grateful and happy that I have been able to make a worthwhile contribution to the orchid world.

After this, using Asctm. curvifolium 'Dream City' as a parent, I've made many ascocenda hybrids, some of which are Ascda. Kohman, Ascda. Peggy Foo, Ascda. Mem. Cho Lai Keum, Ascda. Red Button, Ascda. Erika Reuter, and Ascda. Meda Arnold.

I have repeated hybridizing some crosses using the same stud plants as those used in making the original crosses. Following are some of the remakes and the number of times made:

Ascda. Yip Sum Wah	3 times
Ascda. Meda Arnold	2 times
Ascda. Peggy Foo	3 times
V. Nellie Morley (FV1)	3 times

None of the remakes were any good. No repeats approached the excellence and quality of the original cross so as a result of these experiences, I have decided not to make any repeats. I have kept all the unsowed seeds of the

original Vandaceous crosses under refrigeration for a period of up to 6 years.

From long years of experience, I have found that in order to get good hybrids, I must use mother plants with beautiful flowers and vigorous growth and not to use them continuously. Also, in using as a parent, a plant containing more than 30% V. coerulea, I have found that the resulting hybrids will all resemble the V. coerulea.

I have learned and profited from checking on crosses made by other people and watching and studying the results.

More than 40 years have passed since I purchased my first orchid plant, but I still get a thrill when I see a beautiful flower from one of the hybrids I produced or from any other orchid plant. My only regret is that I do not have another 40 years to see what new crosses will be made and what new changes will occur in the orchid world.

One consolation is that I have a son who has started hybridizing and he, at least, will see the results of my activities in this field. Although, I spent amounts on orchids which I could ill afford during the early years, I have never regretted having done so when I look back in retrospect and count the blessings and the wonderful experiences, I was so fortunate to enjoy during these many years.

History of "Island Orchids" From the Big Island in the State of Hawaii

by "Mike" Goldstein [73]

Everything must have a beginning and Island Orchids found its in 1956. The nurseries are located five miles above Hilo Bay on Kaumana Drive at an elevation of 1200 feet, ideally suitable for the growing of the various orchid genera. Originally the company was built primarily for the purpose of growing Cymbidiums, but through the ensuing years, Cattleya orchids were gradually introduced and grown with such excellent results that the Cymbidiums almost completely disappeared from the collection.

In 1967 Island Orchids changed hands to its present owners. At that time an additional two acres of Anthurium adjacent to the greenhouse were acquired by the company. In May of this year, Mr. Enrique Castro came to Island Orchids in the capacity of head grower. With him came the realization of expanding the company and diversifying the orchid genera. This brought about the recent acquirement of 1000 clones of selected Cymbidiums, a comparable number of Cypripediums, and the pride and job of the Hawaiian Island growers, the vanda genera. These four classes of orchids are considered to be the most popular type of orchids under cultivation, not only as cut flowers, but also as collectors' items.

Presently Island Orchids has a greenhouse area of approximately 20,000 square feet of glass which houses about 250,000 Cattleya plants ranging from 2" to 7" pot size. These 250,000 plants originated from some 150 crosses of well-known studs. At this writing we estimate that only 30% to 40% are blooming size. We are now shipping 250 to 300 Cattleya cut flowers weekly to the mainland and our aim within the next two years is to reach 50,000 yearly.

Although a great change in the orchid field took place when Dr. George Morel discovered that the meristem process could be applied to orchids, we at Island Orchids firmly believe that new creations are still necessary for the future development of the orchid industry. As in any field there is always room for improvement, records made to be broken; these same theories apply to orchids. Nothing excites a grower or hobbyist more than when he makes a new discover or creation of his own. At Island Orchids we live by our motto: to produce not reproduce! With the new materials, pesticides, fertilizers, etc. now available to the grower, our task will be much easier than that of Mr. John Dominy who was credited with the blooming of the first man-made orchid hybrid.

We feel as the Big Island of Hawaii is known as the "Orchid Isle", we want to be a credit to that name. There is no question about it that we have a big job ahead of us not only acquiring the new material needed to meet the demands of our friends and customers but also to improve and beautify our grounds. Our goal is to have a nursery that we can be proud to show and at the same time give some pleasure and relaxation to our guests when they visit. We cordially invite everyone to drop in and see us. We will be happy to show you around the nursery. Watch us grow! (ISLAND ORCHIDS INC., 2132 Kaumana Drive, Hilo, Hawaii 96720)

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PART VIII.

MISCELLANEOUS MONOGRAPHS

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Hilo Florists & Shippers' Association [74]

The members of this association are either individually engaged, or are connected with firms engaged in the business of shipping flowers, especially orchids, to the mainland. Many of its members are orchid growers, and also members of the Hawaii Orchid Society.

Seated, L - R.

T. Mukai, E. L. Kong, Mack Odo, Mrs. Dora Yuhas, Mrs. James C. Gibb, Mrs. Alice Hamilton, Mrs. M. Fukuda, Mrs. S. K. Oda, Mrs. H. Matsuo, Mr. H. Matsuo, Mrs. Kay Ushijima, Mrs. Emogene Kono.

Standing, L - R.

J. R. Peacock, K. Sunada, John S. Kodani, B. Quear, Y. Hirose, President; R. Byran, President elect; J. Flood, & Charles Mizukami.

Left early.

Mr. & Mrs. Hayato Tanaka.

"Thoughts on Hawaii"

by Ralph R. Kiesewetter [75]

It is with feelings of deepest gratitude and appreciation that I offer these few words to the members of the Hawaii Orchid Society.

To adequately express my thoughts on the visit to the orchid growers of Hawaii would take many pages and much more literate skill and talent than I possess. My visit was not a lengthy one and that one item in itself precludes the possibility of make specific observations and drawing conclusions with any degree of accuracy. Therefore, if you will bear with me, I will record my impressions in a general way and hope you will fill in the blank spots for me because the old saying "Words fail me" often overtakes me when I try to describe the Islands and their most hospitable people.

As is the case with anyone visiting Hawaii for the first time, I was greatly impressed with the charm and graciousness of its people. It added tremendously to the natural beauty with which the Islands is endowed. The scenery was magnificent and I shall long remember its breath-taking splendor.

While visiting in Hawaii I was fortunate in being able to attend the Honolulu Pacific Show and the meetings in Maui and in Hilo. The discussions at these meetings were interesting and informative showing that the members were alert to and aware of the many and complex problems facing those who would grow orchids. I had the pleasure of meeting and speaking with orchid growers, both amateur and professional, hobbyists and commercial growers. All manifested an enthusiasm that was extraordinary. The methods of culture as observed on tours arranged for me were unusually well-suited to the growing of Vandas and Dendrobiums.

I cannot help but say here, that in all my experience I have never seen Vandas and Dendrobiums in such profusion of blossom and variety of color. Many of the flowers were most unusual in form and exquisite in coloring. The settings in which they were displayed were exotic and unique in many respects. And while we are on the subject of Vandas and Dendrobiums, it is my candid and honest opinion that the Island growers are many years in advance of the growers on the mainland. They seem to have established growing procedures and practices that are most productive.

Cattleyas, while not developed to the heights that Vandas and Dendrobiums have reached, are being grown more and more successfully. The conditions for the culture of Cattleyas are ideal and if the growers continue their strides along these lines as they have in Vanda and Dendrobium culture it can be safely assumed that Hawaii will become one of the foremost Cattleya growing spots in the world.

I would like to assure you at this time that it is my earnest desire to be able to conduct a number of experiments with some of the plants you have so generously given me, to study their habits of growth, to perhaps develop aids in culture that will benefit orchid lovers be they professional or amateur. Given time to assemble sufficient information, to tabulate results of experiments and formulate plans, I hope you will grant me the opportunity of writing again for the your bulletin.

Until such time, then, I can but wish you continued success in your work and trust that we shall meet again soon, either in your lovely islands or here in the very beautiful North Hills of Long Island.

October 3, 1949

Indigenous Orchids of Hawaii

by L. W. Bryan [76]

In selecting areas suitable for the growing of orchids, mother nature apparently did not do too well when she allotted only three species to these Islands. Certainly it has since been demonstrated that our climate in Hawaii is well suited to the Orchidaceae family and that many different species do well here. From the way which many of our exotic orchids take hold, grow, and spread naturally, it would appear that perhaps mother nature "missed the boat" in making her original selection of species to be allotted to Hawaii.

Actually the selection was a natural one and the fact that the orchid family is so poorly represented here is due not to an unfavorable climate but to the isolation of this group of Islands. This isolation has prevented other species of orchids (as well as other plants) from reaching our shores naturally. The three species of orchids that are indigenous here are of no commercial importance. They produce small inconspicuous flowers and are found in locations infrequently visited by man. Two of these species are found on all of the island, while Habenaria holochila, the third species, is found only on Maui, Molokai and Kauai.

An indigenous plant is one that is native to a given area but may also be native elsewhere. An endemic plant is one that is native to a given area but not found anywhere else. In the case under consideration, our three species of Hawaiian orchids are endemic and are found only on Hawaii. For those interested, the following brief descriptions of our three species are given herewith:

Liparis hawaiiensis -- A small epiphytical orchid; pseudobulbs small, each bearing two leaves; flowers, three to nine, thin, delicate, greenish white. Grows in the middle forest on all of the Islands. The genus Liparis is the most widely dispersed genus of the orchid family. It is found all over the world in both the tropic as well as the temperate zones of both hemispheres.

Anoectochilus (Odontochilus) sandwicensis -- A small terrestrial orchid; stem terete, purplish, decumbent with four to five leaves; flower spike is terminal with many yellow flowers with or without pinkish spots. Found in the lower forests on all of the Islands, but rare. Member of a genus which is found from India through Malaysia into Polynesia.

Habenaria holochila -- This is also a terrestrial orchid which occurs only in the high bogs on Molokai, Maui and Kauai. It is erect with five or ten leaves and has a tuberous rhizome. Flowers are small, dull, greenish, arranged on a long many flowered spike. Habenaria is a very large genus dispersed over a large portion of the Earth.

Donald MacIntyre - An Appreciation

by Robert Edgar [1]

Donald MacIntyre began his career in Scotland and graduated from the Edinburgh Royal Botanical Gardens. These Gardens are well known for the excellent training and learning they give their students, and while there he achieved distinction as an Orchid grower. On a visit to the Gardens the late Samuel Mills Damon requested from the authorities the best available man they had to come to Hawaii. Donald MacIntyre's name was submitted and he subsequently arrived in Hawaii during the year 1898.

The present site of Moanalua Gardens where he served so well and faithfully for 50 years was at the time a rice paddy. Under his expert supervision Moanalua Gardens grew to be one of the most beautiful sites in Honolulu. He was the pioneer of Orchid growers in the Territory, and the Damon Orchids were known far and wide. He was responsible for the importation of many fine plants to the Territory, the best known perhaps being the Pirie Mango, the beautiful Anthurium, and many others. Yes, he certainly does deserve a place in Honolulu's hall of fame. His vast knowledge of plants was frequently sought by the various horticulturists in the Territory, and his advice which was freely given is responsible for much of the beauty of the Islands. The Orchid world owes him a great deal as his methods and advice were the forerunner of the orchid business as we know it today.

In compiling this article I trust that I have paid Donald MacIntyre the high tribute he so richly deserves. His memory will live on among his friends, particularly those at Moanalua Gardens.

The Use of Orchids in the Landscape Design

by Shizuta Kadota [78]

To the average homeowner in Hawaii, the use of orchids in the landscape design was but a dream fifteen years ago. Relatively few people owned orchid plants then and not much was know about their culture in the islands. They were considered to be hothouse plants requiring special attention and expert "know-how." Today, thanks to generous information furnished by veteran growers and due to the good work of orchid societies throughout the Territory, much of the mystery surrounding their propagation and culture has been dispelled. These once rare and expensive plants can now be owned and grown by anyone and many of the genera have been naturalized out of doors and grown without special care. The Spathoglottis, Epidendrum, Arundina, Phaius, Vanda, to mention a few, can be found in many gardens especially on the Island of Hawaii. As improved hybrids come into bloom, many of the mediocre varieties will be "culled" out from greenhouses and these "cast-offs" will provide excellent material for the landscape gardener.

In tropical gardens where it is natural to expect bright and daring colors, orchids do have a definite place and should be used more extensively by island gardeners. Orchid colors that normally clash elsewhere could be made to blend well in the tropical settling of large-leaved plants and lavish color. Some artists claim that colors never clash in Nature while others say that Mother Nature has pet tricks to obtain color harmony. In trying to create "artificial" arrangements of tropical plant material, it is only natural that the gardener try to emulate some of Nature's handiwork which in the tropics seem to favor splashes of bright colors and mass plantings of heavy foliage.

Landscape gardening is an art of design and gardeners differ radically in individual interpretations of plant arrangement, color scheme, and plant selection. To a large extent, landscape gardening is a matter of personal taste and it is not practical to outline a cut-and-dried set of rules to follow. Because of this free interpretation of individual taste, no two yards in Hawaii will be planted exactly the same. Fortunately, here in the islands, there is a wide selection of plants to select from in creating the design, and the gardener may experiment with any combination of plants. Orchids as a dominant motif present an exciting adventure in landscape gardening. The orchid family is the second largest in the plant kingdom, embracing over 600 genera and 15,000 species, not to mention the ever-increasing list of hybrids.

Ironically, especially in and around Hilo, orchid culture has advanced and expanded to such a large scale that the average home-ground cannot be landscaped. Backyard orchid enterprises have expanded to the front area and many a modest beginning in V. Miss Joaquim has crowded out beautiful front lawns and shrubbery plantings. It is not unusual in Hilo to find lots planted solid to the boundaries in Vandas.

This article is intended for new homeowners who are starting from scratch in developing their gardens. The foreground to any dwelling should normally be devoted to a well-kept, open lawn with shade or flowering trees framing the view from the street. Shrubs and flower beds should not be cluttered over the

front lawn but should be confined to the borders or be at the base or foundation of the dwelling. All plantings should have a purpose and in Nature it is unnatural to see plants spaced equal distance apart or beds arranged in geometric lines. Tree ferns do not grow four feet apart in single rows nor do Spathoglottis grow in perfect circular or triangle beds. If Nature is to be imitated, the gardener should plant in masses and avoid straight lines. Tall plants should be planted behind lower plants and for short, medium, and tall plantings, the landscape gardener classifies them into facer, filler, and background material. As an example, Spathoglottis plicata could be used as facer material with "Joaquim" vandas (V. Miss Joaquim) as filler, and Arundina bambusifolia as background. Any number of combinations is possible with a little imagination. Many tropical plants have foliage resembling that of orchids and these could be used to supplement the orchid motif.

For the outdoor garden in Hawaii, Den. superbum may be attached to overhanging limbs of existing trees. Cattleyas, Laelias, and Brassovolas, as they become "common" in hothouses, may be attached to tree trunks; and naturalized. Oncidiums and Cymbidiums in time should find their places in garden borders. Phaius, Spathoglottis, Arundinas, and Epidendrums in mass plantings are not expensive propositions any more. Strap-leaved Vandas do very well at base of live tree ferns and even Calanthes may be used for seasonal color if proper ground cover can be grown to clothe them during their dormant period. For specimen planting, the gigantic Gram. speciosum provides excellent material and should occupy a prominent position in any garden designed in the orchid motif. Another member of the orchid family that has a place in the tropical garden is the Vanilla vine which may be allowed to climb into the trees. Stanhopeas in crotches of trees and Thunias clumped in proper settings bring variety into the garden and as orchid enthusiasts who lean toward "botanicals" discover new genera that can "take it" out of doors in rain and sun, this list will grow and grow.

Here in Hawaii where there are no extremes in temperature, many more plants will move out from hot houses to open outdoor living rooms. Orchids, now being grown only for their commercial value, will be used more generously in beautifying the yards. It will be interesting to see how true some of these statements prove to be, fifteen years from now.

Tree Fern

by Takumi Kono [79]

The botany and old time uses of the Hawaiian tree fern had been written quite extensively and it seems that even from ancient days the tree fern had held an important place in man's economic life.

Of late, the tree fern is again getting recognition as an important item for use in a new and growing industry - that of anthurium and orchid growing. There are surprisingly many ways in which the tree fern is used in growing the two very popular classes of flowers.

This article is intended to familiarize people with the three varieties of tree ferns most commonly put out in the market.

The tree fern having the most extensive use for plant work is the hapu iii. This plant grows very large and tall. The base may measure up to 4 feet in diameter, and the plant may stand 20 to 25 feet tall. The thick bottom portion is generally used for pot making. Pots 4 feet in diameter measuring from the outside finish surface are not uncommon products of the forests. Pots measuring in diameter from 18 inches down to 10 inches are the most common ones put out by pot makers who, at present, make all their pots by the use of hand tools. Fern slabs are also cut from the bottoms of this large hapu iii. Chips resulting from pot making and uneven pieces resulting from slab cutting are bagged and sold for use in anthurium growing. Some of the cleaner pieces can be used for orchid growing. Trunks measuring from 6 inches to 10 inches in diameter are generally cut into 2'-3' lengths and vandas are planted on the outer perimeter.

Hapu iii can also be used for landscaping. Some people prefer the hapu iii to the hapuu for landscape use. The young fronds of this variety have a protective covering of very dark brown prickly hair. The roots of the hapu iii are finer in texture than the roots of the other tree ferns. Fine root hairs seem to emerge from the long roots and seemingly produce a cushion effect to the trunk.

When vandas are grown on hapu iii, the orchid roots seem to work into the tree fern root mass, whereas, when vandas are grown on the other two varieties of tree fern, the roots seem to stay on the surface of the tree fern trunk.

The second variety of tree fern common to our use is the hapuu. The young fronds of the hapuu have a protective covering consisting of fine brown silky hair called pulu. The hapuu generally has a very thick starch core. It does not get big in diameter at the base like the hapu iii. For this reason, the manufacture of pits is limited to a few trunks having the desired small core and thick outer covering of root mass. The individual roots of the hapuu is rather coarse and are held very closely together making the trunk somewhat more solid than that of the hapu iii. The large size of the starchy core and the solidness of the root mass make the hapuu very heavy as compared to the same size of hapu iii. When hapuu is used for landscape work and planted under partial shade, it will grow very well and produce large graceful leaves. The hapuu trunk is also used for vanda planting. The chopped root also can be used for

orchid planting in pots and baskets. Chips can also be used as media for anthurium growing.

The third variety which is known as the amau is the smallest in diameter of the three ferns. The core of this plant is relatively very large and the root mass rather thin. The amau falls very easily break. For this reason wild pigs can easily feed on the starchy core and seem to be fat and plentiful where the amau grows in abundance.

Amau seems to best only for vanda growing by side attachment on a piece of log. The roots are very coarse and also very closely together making the amau very heavy for its size.

Tree fern cutter generally wait until after a few days of good dry weather before going into the forest to cut and carry tree ferns out from the Hawaiian jungle. A water-soaked fern log, 10 inches in diameter and 4 feet long, could weigh in the neighborhood of 100-125 pounds.

Growing Cattleyas in Tree Fern Compost

by Milton Warne [80]

The growth and flower production of our Cattleyas stock during the past two years has been the best we have ever had. Five-inch-pot plants which bear eight, ten or twelve flowers per year used to be exceptional, but not now. Many plants which formerly produced only a summer crop are now giving a secondary winter crop. Much of this improvement is due to our present use of tree fern as compost. As I see it, success in using tree fern for Cattleyas depends on two things; proper preparation of the tree fern, and an adequate fertilizing program. Let us consider both of these.

Preparation of the Tree Fern Fiber

Tree fern stumps are composed on woody longitude fibers, each fiber more or less covered with a light yellow fuzz. The problem in preparing a compost for orchids is to break up the hard woody stems into pieces which will give the correct physical media for orchid roots, and also to remove excess amounts of fuzz and dust. This is done as follows:

1. Select fairly large stumps, preferably 8" up to 30" in diameter, with firm fiber. Avoid soft spongy stumps. Use those which are reasonably fresh, not old material dead for several years.

2. Using an axe, split the stumps lengthwise into strips about the size of a 1 x 4 board. Cane knives or machetes do nicely for all but the first cuts into the stump.

3. Cross cut these sections into pieces an inch or two long. This is done with a cane knife on a chopping block.

4. Break up the small chunks by pounding with a mallet or hammer.

5. Put through several rinses of water to remove a good proportion of the fuzz and dust. A certain among of this should remain in the compost, as it tends to hold the correct amount of water, but too much of it will interfere with the proper aeration of the roots.

The media, after drying for a day or two, is ready for use. We pot with it just as with osmunda, and just about as hard. However, in potting, it takes comparatively less packing to produce firm potting than does osmunda.

The Fertilizer Program

The second phase of growing Cattleyas in tree fern is the feeding program. Since tree fern is deficient in plant food, feeding is greatly beneficial. We use a water soluble chemical fertilizer applied by siphoning as the plants are watered, and feed the plants the year around. However, concentration of the fertilizing solution and frequency of application are both varied according to growing conditions. I believe in weak but frequent applications. The amount we use varies but is somewhere under a pound of fertilizer to each one thousand plants of five inch pot size.

The interval between feedings ranges from one week to three weeks. Both the amount of feed applied and the time element are varied according to several conditions:

1. The amount of sunlight reaching the plants. Since sunlight supplies the energy for photosynthesis, it follows that it is directly related to the plant's food requirements. Note that the among of sunlight is influenced by a number of factors, among them are: the length of daylight according to the season, the amount of cloudiness, the angle at which the sun is striking the plants, the location of the plants in their hothouse, the spacing of the plants on the benches, etc.

2. Temperature conditions. Plants grow faster in warm weather, and the food requirements are greater also.

3. The size of the plants, particularly in relation to the pot size in which they are growing. Plants transplanted six months or less need less food than those which have filled the pots better after transplanting.

4. The somewhat intangible considerations of color of foliage, strength of new growths developing, etc. These of course are probably merely indications of other conditions.

5. Very little attention is paid to resting periods. The so-called resting period is induced by the growing conditions, particularly sunshine and moisture. If these can be given the plants in adequate amounts, our modern hybrids do not seem to care for a resting period.

Comparison of Tree Fern and Osmunda

These two media can be compared to one another in accordance with several different qualities.

1. Nutrition. Osmunda yields a much better amount of plant food. However, by the use of chemical fertilizer plants grown in tree fern can be nourished better than those in osmunda. There is no doubt that tree fern plus feeding is superior to osmunda without feeding. This does not mean that osmunda with proper feeding would not be equal or better.

2. Lasting quality. Tree fern is greatly superior, lasting fully twice as long before breaking down.

3. Physical properties. Tree fern, if properly prepared, has a physical properties. Tree fern, if properly prepared, has a physical makeup which is admirably suited to orchid root action. The same is true of osmunda. Generally osmunda takes less preparation, although it too needs to be shredded and cleaned.

4. Cost. Tree fern is much the cheaper in Hawaii. By the prices in recent months, even adding the added labor expense of preparation, tree fern costs only about one-third as much as osmunda for each plant potted.

5. Transplanting labor. Tree fern has the advantage in two ways. Since it does not decompose readily, plants being repotted do not require as much time in stripping decayed compost from the roots. Generally trimming back and

a good rinse with water pressure is all that the plants coming out of tree fern need for repotting. The second way is that it takes a little less labor to pack tree fern firmly and evenly.

6. Finish potting. This rather indefinite term I am using to point out one problem with tree fern potting. Since in the preparation, the media is pretty well broken up, there is some inclination for the material to work loose at the surface. At present, we are using just a little osmunda to tie the tree fern down around the rim of the surface.

Remember finally that the media is only one part of the job of successfully growing your orchids. Do not expect miracles of fertilizers. They cannot lessen the watering job, and will not kill the insects for you. The same for all the other work, staking, housing, and so on. But if you can grow your plants better by the use of materials which save you money, then why continue to use osmunda.

Orchid Gardening

by May and Goodale Moir [81]

During the last few months, almost every orchid grower in Honolulu, and especially those in the valleys, while meeting another grower has had occasion to discuss the weather. One cannot easily remember any spell of Kona weather that lasted as long and as intensely as that we have experienced in the last few months. Even in the drier lowlands of Honolulu there has been a lost of plants and flowers because of the Kona weather, either from wetness or wind.

Recently we made up our minds to build ourselves an outside orchid garden, requiring a minimum amount of care. We laid out the garden in courts or patios devoted to various kinds of orchids, together with plants that could be used with them partly for shade or support and partly for beauty. A rock garden effect combined with tree fern, low azaleas, begonias, succulents and anthuriums has made a beautiful settling for Epidendrums, Schomburgkias, Renantheras and Phaius. Another rock garden effect with more sunshine and drainage has been used for Spathoglottis, Dendrobiums, Cattleyas, Laelias, Sobralias and Trgl. braciata.

On another side of the patio, in a raised area, Spathoglottis and terrate Vandas have been grouped, while under and on tree ferns large and small Oncidiums have been massed.

On the other side of the house a double bench of landing mat is massed with flat leaved Vandas. Around the bottom of the hollow tile wall terrate Vandas and Epidendrums are planted and Dendrobes in clay pots are hung on the walls.

During the time this work was being carried out each plant, removed from a pot and placed in the rockery or raised hapu (tree fern) and redwood bed, was examined. All dead parts, especially roots, were removed and a general good cleaning administered.

It became apparent to us that under upper Nuuanu conditions, in the open, we were foolish to use osmunda fiber or red cinders, either alone or in combination with hapu (chunks or finely chopped up). Black cinders (Round Top variety) were very much better than red and quite satisfactory with chopped up hapu.

During this period of landscaping we had left the better Dendrobes and all the flat leaved Vandas to the end of the project, since they were to remain in pots. The wet weather hit us and plants began to look bad or did not even grow.

We decided to try a new technique, as far as we were concerned, but one used with success by others in wet areas. Probably the method of using the technique is not exactly that of the others, but it is so similar that it can be classed as the same. This method of potting is that made use of by William Kirch for many years and which is often refereed to by Japanese yard boys as "concrete."

First our Vandas were repotted. While doing this we found that the

healthiest were those with much charcoal, broken pieces of pots and large chunks of hapu, while those potted in osmunda had few live roots, and those only outside the pot. This was also true of those planted in made-up hapu baskets. The plants in redwood baskets were in such excellent shape that they needed only a slight top dressing of finely chopped hapu. However, had we desired to make enough redwood baskets for the many vandas, it would have required a small lumber yard to supply the redwood. We had, however, observed that concrete pots with much drainage and large chunks of hapu gave excellent growth, required little care, and allowed for long intervals between repottings.

For the Vandas, therefore, we used concrete pots, #3 (large) crushed rock and chunks or finely chopped hapu depending upon the size of the plant to be repotted. With this type of potting we were able to transfer plants from smaller to larger pots with greater ease than when plants were in redwood boxes.

For the Dendrobes we used clay pots. These keep drier, and especially so when hung up on the wall. We also set them on tiles in a hot sunny spot where protection could be had from excessive rain.

The more we repotted, the more thankful we became that we had started the work and the greater the urge became to complete the job. This was because we learned that the new way was the easiest method we had ever tried. We also saw how necessary it was to get the job done before we lost our plants.

With every single plant we found the same story. The only live and functioning roots were those found outside of the osmunda fiber or any other soggy mass of material. In fact, with the Dendrobes, many of the plants had almost no roots and had to be trimmed back severely. The plants repotted many weeks ago have now sent out a mass of new roots into the excellent aerated media they are now growing in.

In adopting this method of potting one must realize that the proportion of rock and hapu must be varied according to the size of the plant, its normal root system and the location in the garden where it will be grown. This is necessary so that there will be (1) proper moisture without excessive amounts, (2) sufficient media on which to hold plant food and (3) plenty of humid aeration. Fertilization with such materials as cow or chicken manure, "Soiltex," "Hyponex," "Gaviota," "Vigoro," Anthurium fertilizer or other similar materials must be practiced with this potting media and excellent growth will result. A rotation of some of these should be practiced to give the plants a chance to select out various materials and at the same time maintain good aeration. Manure with too much bulky material in it can also act as a soggy mass in which roots will not grow. Light and numerous are better than heavy and few applications.

Osmunda fiber still has a useful purpose with very small seedlings inside of a glass or plastic covered house. The ability of the osmunda, sometimes combined with peat moss, to hold moisture is an essential for keeping these small plants alive. However, once these plants are taken from the house and placed in the open there is a definite need to remove the osmunda before planting in rock and hapu.

The rotted and decayed osmunda fiber removed from all the pots makes an excellent media for Epidendrums when banked at the base of hapu stumps. It is also very good in potting Cyps and phaius.

These comments are applicable to conditions like those in upper Nuuanu and may not apply to other areas. We have felt extremely lucky that we finally adopted the "concrete" method and saved our plants. These comments are offered that others may be encouraged to experiment also.

Hawaiian Orchids for the Queen of Thailand

by H. Kamemoto [82]

Orchids sent by the Hawaiian Orchid Societies, Inc. constituted the 1962 gift of the United States Information Service (USIS) to the Queen of Thailand on the auspicious occasion of her birthday celebration on August 12. In receiving the gift, Her Majesty briefly recounted her enjoyable visit to Hawaii two years ago, expressed her appreciation for the orchids and stated that the flowers would be used as decorations for her party that evening.

It was only a week after my arrival in Thailand as a member of the University of Hawaii team providing technical assistance to Kasetsart University, that I was approached by Mr. Philip Damon, USIS Public Relations Officer. He suggested that since the Hawaii team just arrived in Thailand, it might be appropriate and might make a favorable impression if Hawaiian orchids were involved in the gift of the United States Organization. This was on July 26 and the birthday was on August 12, which left very little time for negotiations to have Hawaiian orchids arrive for the birthday celebration. I suggested that a telephone call to Mr. Benjamin Kodama, President of the Hawaiian Orchid Societies, Inc., would give us an immediate answer as to whether or not this project could be undertaken. We contacted the Joint United States Military Advisory Group (JUSMAG) for their phone service, but learned that it was difficult to arrange a person to person call, particularly to a civilian living outside of Fort Shafter. But, the communication officer was very cooperative and promised to do his best, since this project appeared to be in the interest of the United States Operations in Thailand. By Tuesday of the following week, we were to know whether this call would be permitted.

In the meantime, we cabled Ben Kodama requesting assistance, and suggesting the nature of the gift depending upon the availability of the orchids. Also, we mentioned the possibility of talking to him over the telephone. I dispatched an air letter providing further details.

The next week we checked with JUSMAG relative to the telephone call and learned to our dismay that military regulations precluded the use of their telephone in Fort Shafter by a civilian. This was a great disappointment, for a telephone conversation would have cleared questions at either end, and furthermore, we would have had an indication of whether the support was forthcoming, and if so, the level of support. Phil Damon then suggested trying the commercial line. A radiophone was in operation only during the hours of 5:00 to 7:00 p.m., which was 12:00 to 2:00 a.m. Honolulu time. It was possible to reach Hawaii via Hong Kong and Oakland. However, most of the time contact was difficult, if not impossible. I arrived on the third floor of the General Post Office at 4:30 p.m., waited until 5:00 p.m. when the channel to Hong Kong opens, but became pessimistic over the possibilities when I learned that a GI was waiting for the third consecutive day trying to call his wife to wish her a happy birthday, which was two days ago. Well, contact was made and Oakland came in clearly, but only for a fleeting moment, then a complete blank throughout! I waited until 6:00 p.m., which was 1:00 a.m. Honolulu time, and I was a bit disturbed over the prospect of waking Ben up at such an ungodly hour to ask for assistance. Since there was no assurance that should I wait another hour the call would come through, I decided to leave. The communications office

advised that the channel would be open again next morning between 7:00 to 8:00 a.m. and wondered whether I would still be interested in getting the call through. I answered in the affirmative, and had arranged to have them call me at my hotel if contact was made, but of course, nothing materialized. That night upon returning to the hotel, I wrote another air letter to Ben explaining our failure to get a call through and reiterating our desire to receive some Hawaiian orchids.

Time was drawing close, and having no word from Hawaii, we were beginning to be a bit concerned, for arrangements had to be made with the Royal Palace if the gift was to be consummated. Also, we had not made any arrangements with Pan American Airways because the manager of the local office had been out of town. On Tuesday, August 6, upon the return of Mr. Davis, the manager, Phil Damon asked him for help in transporting orchids from Hawaii should they be available. Pan American was also preparing a gift for the Queen - anthurium, ginger and heliconia flowers from Hawaii - and so Mr. Davis offered to have our gift on board the same jet flight.

The following day we cabled Ben Kodama once again, notifying him that arrangements had been made with Pan American to have the orchids shipped without cost. Pan American teletyped their office in Honolulu requesting accommodation of the orchids. Now, we had only to wait for developments.

On Friday morning, August 10, I received word from Phil Damon that the orchids had arrived at midnight via Pan American jet and were waiting for us at the Pan American office in Bangkok. Accompanied by Dr. Ryoji Namba, another member of the Hawaii Contract Team, we hurried down to claim our cargo. There they were - three large cartons of flowers, and three smaller cartons containing individual orchid plants. Upon the recommendation of Pan American, we hauled the cartons to the White Rose Flower Shop to have them treat and arrange the cut flowers for presentation. It was like Christmas, opening the boxes to see the surprises. The three small packages contained individual orchid plants - a flowering Onc. Dr. Schragen, variety Queen Sirikit, Lc. Costa Rica, AM AOS in sheath, and a flowering Phalaenopsis. Then from the large boxes appeared an array of beautiful orchids which evoked the "oohs" and "ahs" of lookers on. There were numerous sprays of V. Nellie Morleys, dark blue and well shaped V. Rothschildianas, a flaming red spray of Rnps. Lena Rowold, and fine specimens of V. Oscar Kirsch, V. Onomea, V. Alice Fukunaga, to mention a few. Most of the cut flowers arrived in excellent condition, although a couple of vanda sprays were limp and completely faded.

The flower shop owner recommended cutting off the base of the stems and immersing the stems in warm water for a couple of minutes to promote water intake. Then they transferred the flowers to cool water containing some chemicals similar to our Floralife, to prolong the life of the flowers. They were to keep the flowers in ordinary flower containers until Saturday evening at which time those in good condition were to be made up into floral arrangements for presentation the following morning.

On Friday afternoon the wives of the Hawaii Contract Team were scheduled to call on the U.S. Ambassador's wife, so three sprays of V. Nellie Morley were arranged nicely for presentation in the name of the Hawaii team.

Being associated with orchids, I was asked to represent the Hawaii group in the USIS presentation. At 8:00 a.m. on Sunday, August 12, Dr. MacCormac,

Director of USIS came for me at the Rama Hotel. We then proceeded to the White Rose Flower Shop and were very pleased to see the three beautifully done arrangements. USIS brought along a photographer so that we might be able to show the people of Hawaii how their gift appeared.

The Damons met us at 9:15 a.m. We loaded the orchids in both cars and headed for Chitlada Palace. Damon's car went through the gate without ado, but our car was momentarily detained because they thought I represented the Japanese Embassy.

We were ushered into a very spacious building - the palace schoolhouse. Already many people representing various organizations were gathered with their respective gifts. They formed a long queue in four rows so that Her Majesty could work her way from one group to another in a continuous circuit. When we entered the room, a large table near the entrance - a choice spot - was available for placing our gift. This special reservation was undoubtedly due to the fact that the Damons are well known personages in the Palace circle.

After waiting for the arrival of the Queen for nearly an hour, apparently word was received that her appearance would be delayed awhile, so suddenly everyone broke rank to drink iced tea and sit down to relax his somewhat weary feet. Fifteen minutes later we were back to assume our assigned positions. Finally about 11:15 a.m. Her Majesty was seen receiving gifts from people lining the hallway leading to our room, while the court photographer and television cameraman were busy capturing the proceedings. Her Majesty confronted us a few minutes later. Phil Damon introduced Dr. MacCormac, then myself, and informed the Queen of the origin of the gift, that the plants were special award winners, and the oncidium variety was name especially in her honor. She shook our hands, thanked us for the thoughtful gift, reminisced briefly about Hawaii, and then moved to the next group. We were told that there were close to 90 organizations represented that day.

Her Majesty, as usual, was very gracious and charming, beautifully attired and most attractive. It was indeed a privilege and a rare experience to have had the opportunity of participating in the presentation of Hawaiian orchids to the Queen of Thailand.

That afternoon our prospective landlady called on us at our hotel and remarked that she viewed us on television. Also, up north in Chiengmai, my good friend Mr. Rapee Sagarik, President of the Bangken Orchid Society and Horticulturist in the Department at Kasetsart University with whom I am associated, who attended the annual orchid show there, mentioned that he heard about our orchid gift over the radio. Incidentally, I was scheduled to go to Chiengmai with Mr. Rapee to see the orchid show featuring V. coerulea flowers in peak season, but the orchid presentation from Hawaii coincided with the show; therefore, my visit to Chiengmai was deferred to a future date.

Thus, the teamwork of the United States Information Service, the University of Hawaii Contract Team, the Pan American Airways, and particularly the efforts of the Hawaiian Orchid Societies, Inc., and the individual orchid growers who contributed the valuable orchids, resulted in the presentation of a very appropriate birthday gift to the Queen of Thailand. I wish to personally acknowledge with deep appreciation the wonderful response and cooperation of Mr. Benjamin Kodama and the Hawaiian Orchid Societies, Inc., for making the project a success.

(Rec'd Oct. 15, 1962)

Chromosome Numbers of Orchids in Hawaii

by H. Kamemoto, R. Tanaka, and K. Kosaki [83]

Introduction

Chromosome studies during the past 15 years have resulted in the accumulation of knowledge which can be of considerable practical value to the orchid breeder. Because an increase in chromosome number is usually accompanied by improved horticultural characteristics, orchid breeders have come to accept chromosome number determinations as an important tool in breeding. Such terms as diploids, triploids, tetraploids, and even aneuploids have become common usage among orchidist.

Since the initiation of the research project on orchid cytogenetics at the University of Hawaii in 1950, several articles on this subject appeared in various orchid society bulletins. These articles gave chromosome numbers of orchid plants which were pertinent to the subject under discussion. In 1958-59, Ryuso Tanaka of Hiroshima University was invited as an Orchid Research Fellow to conduct orchid cytogenetics research. In the course of his study, he was able to establish chromosome numbers of many exceptional orchid plants, and therefore, it was deemed desirable at this time to tabulate and record all chromosome counts of orchids of horticultural interest made in Hawaii during the past decade. Such a list should be of interest and value to the orchid breeder.

Ryuso Tanaka's research on orchids at the University of Hawaii was made possible through the support of the Hawaiian Orchid Societies, Inc., the American Orchid Society, Inc., the Wilhelmina Tenney Fund, and the following orchid nurseries: Greenhouse Hawaii, Iwanaga Orchids, Kazuo Kamemoto, Kazumura Orchid Nursery, Oscar M. Kirsch, T. Kodama Orchid Nursery, M. Miyamoto - Orchids, Norman S. Miyata, Mrs. Lester McCoy - Orchids, Rudolph Ogawa, H. Otake - Orchid Nursery, Walter Oumae, and J. Milton Warne. To the above organizations and orchid growers, sincere appreciation is expressed. We wish to thank also the many orchidists of Hawaii who have willingly and generously provided plant materials and information and have continually expressed interest in and offered cooperation and support of our research program.

Variations in Chromosome Number

An orchid plant is composed for hundreds upon hundreds of cells and within the nuclei of those cells are tiny discrete bodies known as chromosomes. These chromosomes carry genes which are the determiners of heredity.

The chromosome number of a given species is generally constant - 40 for Cattleyas, 38 for Vandas, 38 for Dendrobiums, 38 for Phalaenopsis, etc. These numbers represent two sets of chromosomes, one set derived from the pollen parent and the other from the seed-bearing parent. They are called diploids (di - two; ploid - fold). Reduction division or meiosis results in the production of eggs and pollen, each possessing only one set of chromosomes. Upon successful pollination and fertilization, the united sperm and egg form the first cell of a new plant having two sets of chromosomes. This is the usual pattern - the production of eggs and pollen with reduced chromosome number and their fusion

in fertilization to restore the diploid number and thereby maintain the constancy of chromosome number for the species. Occasionally, however, changes in chromosome numbers occur, some of which are increases in multiple sets of chromosomes. Plants with three sets of chromosomes are tripioids (tri - three; ploid - fold); those with four sets are tetraploids (tetra - four); those with five sets are pentaploids (penta - five); those with six sets are hexaploids (hexa - six). Triploids, tetraploids, pentaploids, hexaploids, and higher ploids are collectively referred to as polyploids (poly - many; ploid - fold). These polyploids, along with haploids (monoploids) and diploids, are also termed euploids (eu - good or advantageous) because they possess chromosome numbers which are exact multiples of a given set.

An individual with chromosome number other than an exact multiple of a chromosome set is an aneuploid (an - not). In Cattleyas the euploid numbers are 20 (haploid), 40 (diploid), 60 (triploid), 80 (tetraploid), 100 (pentaploid), etc. Plants with numbers deviating from the above euploids such as 41, 42, 58, 59, 61, 62, 81, 82, etc., are correctly termed aneuploids.

Characteristics of polyploids and aneuploids

An increase in ploidy in orchids is often accompanied by an increase in size of plant parts. Plants are stockier; leaves are darker green, wider and thicker; and flowers are of improved form. Due to the increase in width and substance of sepals and petals, the flowers are often erect, sturdy, and compact, characteristics that are desired for exhibition purposes.

Because increase in ploidy results in improvement of individual flowers, it stands to reason that more award winners are found among tetraploids than among triploids. However, for cut flower purposes, an important consideration is floriferousness, and it appears that this characteristic is generally inversely related to increased ploidy. Triploidy appears to be the most desirable level for cut flower production in Cattleyas as well as in Cymbidiums. At this level, improved flower quality is obtained without sacrificing flower production.

Not all polyploids have superior characteristics. Since genes are the ultimate determiners of heredity, a duplication of a poor set of genes in a tetraploid will accentuate inferior qualities. Conversely, a diploid with a collection of good genes can produce flowers of better quality than a triploid or tetraploid with poor genes. A combination of good genes and polyploidy should be the aim in breeding for award-winning plants.

In some instances when diploids already have genes for heavy substance, an increase in ploidy may possibly result in "too-heavy" substance which might cause crippling. Many tetraploid yellows are notorious for this character. It has been noted in some crosses that triploidy substantially reduces the malformation of flowers among yellows.

For cut flower production among Vandas and Dendrobiums, the diploids have maintained their importance. A superior commercial cut flower variety which will probably remain in commercial production is the diploid V. Miss Joaquim. Den. Jaquelyn Thomas and Den. Neo-Hawaii, which are also diploids, have demonstrated their value as cut flowers among Dendrobiums.

Occasionally, plants with one or two additional chromosomes arise. Morphological differences are not always clearly evident among Cattleyas with

41, 42, or 43 chromosomes. Also, aneuploids on the polyploid level, such as those with 61, 62, 79, 81, 82, 83, 101 and 102, often do not exhibit detectable morphological variations from their corresponding euploids (60, 80, and 100). On the other hand, aneuploids with chromosome numbers deviating considerably from the euploid numbers may exhibit differences in plant vigor and morphological characteristics. Their breeding behavior may also be adversely affected.

Breeding behavior of polyploids and aneuploids

The best orchid stud plants are tetraploids because they are fertile and produce offspring that are relatively uniform. Variations in degree of fertility occur among tetraploids depending upon the constitution of the chromosome complements. If all four sets are uniform, such as tetraploid strap-leaved Vanda (autotetraploid, SSSS), fertility may be reduced due to irregularity in meiosis which results in the formation of univalents, bivalents, trivalents, and tetravalents. On the other hand, tetraploid semi-terete Vanda (allotetraploid, SSTT) exhibits less irregularity at meiosis because normal chromosome pairing can occur within similar sets of strap and terete Vanda chromosomes.

Tetraploids can be selfed or crossed with other tetraploids to produce further tetraploids. When crossed with diploids, triploids will result; while crossed with triploids, variable offspring might be predicted.

Triploids are generally of low fertility and often represent a dead-end in breeding. The reason for this poor fertility is the high irregularity in reduction division. Because there are three sets of chromosomes, distribution of chromosomes to the poles is unequal, resulting in pollen and eggs with varying chromosome numbers, many of which are nonfunctional. Occasionally, restitution of nuclei will give rise to functional unreduced eggs and pollen.

Some triploids produce offspring. The chances of success with triploids are improved if they are used as the seed-bearing parent instead of the pollen parent, and if tetraploids instead of diploids are used as the pollen parent. The resulting progenies can be expected to be highly variable owing to the wide range of products of reduction division. For example, triploid V. Nellie Morley x diploid strap-leaved Vanda has resulted in individuals with 38, 39, 52, 57, 70, 71, 73, 75, 76, and 95 chromosomes. Triploid Den. Lady Constance x diploid Den. phalaenopsis has produced seedlings with 38, 42, 46, 51, 52, 57, and 75 chromosomes. This type of cross can therefore be expected to yield diploid, triploid, tetraploid, and pentaploid offspring in addition to aneuploids. Some pentaploids might be anticipated from triploid x tetraploid crosses as has been the case with triploid C. Rembrandt x tetraploid Lc. Pasadena which produced pentaploid Lc. Rosa Kirsch. However, variability can also be expected as shown in the cross, triploid C. bowringiana 'Splendens' x tetraploid Blc. Wendell Hoshino, which produced individuals with chromosome numbers of 100, 79, 70, and 71.

Pentaploids generally appear to be more fertile than triploids. Studies on meiosis in pentaploid strap-terete Vandas have revealed that usually two sets of chromosomes reach either pole and the chromosomes of the extra set assort at random. Thus, in crosses involving the pentaploids, V. Nora Potter, V. Colorful, and V. Roberta Chun, with diploid strap-leaved Vanda, chromosome numbers of offspring ranged from 59 to 68, with the majority having from 65 to 68 chromosomes. These are aneuploids between the triploid and tetraploid levels.

Aneuploids with deviations of one or two chromosomes from the euploid level apparently do not exhibit adverse morphological characteristics or breeding behavior, and therefore, from the practical standpoint, they might be included with the euploids. Aneuploid Cattleyas with 61 or 62 chromosomes will show poor fertility similar to triploids with 60 chromosomes, while aneuploids with 81 or 82 chromosomes can be expected to be fertile similar to tetraploids with 80 chromosomes.

Those aneuploids with chromosome numbers more or less intermediate between the triploids and tetraploid levels can be expected to be low in fertility because of chromosome unbalance.

Sterility among diploids

Although orchidists generally attribute sterility in orchids to triploidy and aneuploidy, many diploids also exhibit sterility. Sterility can result from incompatibility of genes, male sterile genes, or genes that cause irregularities in meiosis such as asynapsis, stickiness, and supernumerary cell divisions. Translocations, inversions, and deletions of chromosomes may also result in sterility. The most common cause of sterility encountered among diploid orchids is probably lack of homology of parental chromosomes in primary hybrids. Normal chromosome pairing at meiosis is often a prerequisite to fertility. In interspecific hybrids, partial pairing at meiosis is often a prerequisite to fertility. In interspecific hybrids, partial pairing or complete lack of pairing results in poor fertility. Generally, hybrids of distantly related species are lower in fertility than those of closely related species. Since, in Hawaii, efforts are being directed toward producing increased numbers of intergeneric hybrids, sterility problems will undoubtedly be encountered. On the other hand, improvements in germination technique involving ovule culture may successfully surmount some sterility barriers encountered with the usual seed germination methods.

Early Starters of Orchids in Hilo and Rural Communities on the Island of Hawaii

by Takumi Kono [84]

1. Mr. Herbert Shipman:

Started in 1907. His first orchid was Phal. schillerana, followed by other Phalaenopsis species. About 1908-09, a V. tricolor was given to him. This was a section of the original pant brought into the territory in 1880 from Germany. (Plant was still growing in 1951 when this information was gathered.) Mr. Shipman grew the widest selection of genera on the island of Hawaii, such as Cattleyas, Phalaenopsis, Vandas, Dendrobiums, Miltonias, Paphiopedilums, Cymbidiums, Odontoglossums, Spathoglottis, Phaius, Calanthes, and many others.

2. Dr. E. Yoshimura:

Started in 1920-21. Grew Cattleyas, Nobile Dendrobiums, Phalaenopsis and Vandas. Was the biggest private collector of orchids in Hilo proper, up to about 1950 (then deceased.)

3. Mr. L. W. Bryan:

Started in 1924-25. He brought in all types of orchids. He practiced orchid growing in hapuu, cinders, and in osmunda as well.

4. Mr. Takumi Kono:

Started in 1934, but his father had a few potted plants of that Chinese orchid (Cymbidium chinensis) mentioned by Mr. Hirose, as early as 1930.

Kono's starting plants were vandas and Cattleyas which were gifts from Dr. E. Yoshimura. Major interest in orchid work centered in breeding and development of better V. sanderana varieties as compared with the jungle species from the Philippines. Resulting progenies over the years have won five First Class Certificates (FCC).

5. Mr. Scott B. Pratt:

Started in 1939 at Kohala. Started with Cattleyas and later concentrated in strap leaf Vandas. Mr. L. W. Bryan was the one who first interested Mr. Pratt in orchids.

6. Mr. Sanzo Kawasaki:

Started in 1921. First plants were Cattleyas, as with most early orchid growers.

7. Mr. Y. Hirose:

Started in 1929. Started as a hobby and later extended into commercial orchid growing. Started the first nursery in Hilo. Maintained a certificate plant quarantine screen house and was able to import new plants from many parts of

the world for self and others.

Mr. Hirose's comment: "I saw Phalaenopsis flowering in Hilo in 1911. A Chinese orchid (Cymbidium chinensis) was brought to Hawaii over 100 years ago by Chinese immigrants."

8. Others:

Others mentioned by Mr. Hirose as growing orchids in the early years were Mr. K. Kagawa, Mr. R. Hoota, Mr. A. Anderson, Miss M. Shipman, Mr. H. Smale, Mr. Z. Yamashita, Dr. E. Mitchell, Mr. C. Carlsmith.

Without a doubt, we have missed many other early starters. Our apology to them. Some have not responded to my questionnaire.

Dr. Beaumont was extremely interested in orchids and every time he visited Hilo, he made a point to look me up and we talked orchids. I let him have a whole batch of different V. sanderana seeds for his practice in seed germination. Dr. Bill Storey, a classmate of mine, and co-worker with Dr. Beaumont was also very much interested in orchids in connection with his work in Agriculture at the University of Hawaii.

Adventures in Orchid Potting Media

by Harold M. Kushima [85]

Finding the best medium to grow orchids is an interesting and challenging subject to all orchid growers, whether they be amateurs or professionals.

Temperature and locality play an important role in the selection of a suitable potting medium. In Ewa Beach, Oahu, where I live, the temperature averages 85 degrees during the day and 70 degrees at night. The humidity averages 50 percent during the day and 80 percent at night. Since the weather is usually dry and windy, potting media dries relatively quickly.

When I started my orchid collection in 1951 I used tree fern fiber and osmunda in potting my orchids. In search of a method requiring less labor, I tried red cinders. Later I found that in my locality, this medium needed more fertilizing and watering.

My next venture was a fir bark with the trade name of Silvacon which had just appeared on the market. I purchased a sack of fir bark, and screened it with a 1/2" wire mesh. The large pieces were separated from the small ones and used to pot the matured plants. The small pieces were used to pot Den. phalaenopsis seedlings in 1-1/2", 3", and 4" pots. Potting turned out to be very easy and time saving.

But, trouble started when I tried to water the plants. The dry fir bark would not absorb the water. On my next attempt, I moistened the fir bark before potting my plants. Now, the bark absorbed the water satisfactorily. The next step was to add fertilizer to the water. I use a half and half mixture of Borden's 38 and Gaviota Organic Fertilizer. In addition, every week I alternately apply insecticide and fungicide. To a gallon of each, one teaspoonful of Gaviota Foliar fertilizer is added. The orchids are watered every morning before I go to work with the exception of rainy days.

My venture with fir bark has been rewarding. Now I pot all of my orchid seedlings directly from community pots into 3" pots. They are growing much better than I had expected. I believe that now I have found the ideal potting media for the area I live in.

Orchid Diseases

by Shosuke Goto [86]

The increasing interest in orchid culture in the Hawaiian Islands has been accompanied by the appearance of more and more problems of pests and diseases. The latter are due to non-parasitic causes such as abnormal temperature and water relations, nutrient deficiencies, spray injury, toxic fumes and to the parasitic agents which include the viruses, bacteria, fungi and nematodes.

Viruses are infective particles so small that they cannot be seen even with the aid of a high-powered microscope. They multiply in the juice of infected plants and are spread by mechanical transfer or by the feeding organs of certain insects. Though viruses are responsible for most of the orchid disorder found in Hawaii today, our knowledge about them dates back only a few years. Fifteen years ago, Milton Warne, pioneer Honolulu orchid grower, writing in the Bulletin of the Pacific Orchid Society about his observations on virus-like symptoms on Cattleyas and Dendrobiums, reported that he had not been able to find a single reference to viruses in the orchid literature. He was particularly puzzled by Den. superbum plants which had whitish striping on the leaves and dark discolorations on the flowers. Some growers considered theses flowers to be attractive and many affected plants were distributed or sold at premium prices. Soon it was noticed that the common ordinary plants growing nearby turned into this new variety quite readily. Rokuro Urata and his orchid-hobbyist colleagues at the Experiment Station of the HSPA were among the first to advise that these plants were diseased. Their advice was that all affected orchids be destroyed to prevent further spread. Long familiar with virus symptoms on sugar-cane, they had suspected that far from representing a new variety, the apparently new "honohono" plants were simply those infected with virus disease.

Dr. Walter Carter, entomologist at the Pineapple Research Institute, and long an orchid grower and collector, warned that more research was necessary to determine the true nature of this problem. Ten years later, Dr. Harry Murakishi, plant disease specialist at the Hawaii Agricultural Experiment Station using juice from Den. superbum plants affected with color break, succeeded in transmitting the virus and reproducing the disease symptoms on healthy plants.

Subsequently, during the 1950's, Dr. Murakishi in Hawaii and Dr. D. D. Jensen in California, recorded thirty-two virus diseases on eighteen orchid genera. Some viruses were transmittable mechanically with infective juice from diseased plants; others required an insect to carry the virus to healthy plants. Wide ranges of symptoms were found and described. Some produced color break of the flowers; others produced dead necrotic streaks, chlorotic or yellowish streaks, mosaic patterns, partial to complete rings and diamond spots on the Arasan or Tersan. Diseased plants are often saved by removing the infected parts and exposing in a dry and sunny place.

Nematodes are small, microscopic, eel-like worms which attack the roots, leaves or buds of susceptible plants. On the terete Vanda, early infestations cause stunting and failure to develop (Figure 2H). In later infestations, buds may develop only to turn yellow, shrivel and blacken. The disease was first recognized in Hawaii in 1948. Control measures developed by Dr. William Feder,

nematologist at the Hawaii Agricultural Experiment Station advised the removal and burning of all diseased racemes, together with the use of Parathion spray at the rate of four pounds per 100 gallons of water.

Detailed advice on how to handle disease problems may be obtained from the county agents of the Agricultural Extension Service.

The Saison Orchid Society Show Expo '85 in Japan

by Dr. T. David Woo [87]

This is the first American Orchid Society sanctioned Orchid Show in Japan and the Hawaii Regional Judging Center's judges were specially invited to judge the event on Feb. 20, 1985, with the trip underwritten by Seibu Corporation of Tokyo, Japan.

Tuesday, Feb. 19, 1985. The contingent of judges selected left HNL on JAL, FLT 71 at 10:45 A.M. We arrived at Narita Airport at 2:30 P.M. and after the usual Immigration, Customs and Agricultural inspections were greeted by members of the Seibu group under cold and wet conditions, for there were three inches of snow in Tokyo the day before.

We checked in at the Sunshine City-Prince Hotel and were given the top floor for executives' suites. We were given the itinerary for the duration of the Show. There was a briefing session with the Seibu officials about procedures and plans for the Show. Dinner was at the Seibu Department Store Japanese Restaurant on the 9th floor. The specialty of the house was Anago (eel) dinner which was delicious and enjoyed by all.

Wednesday, Feb. 20, 1985. The six judges met at 9:15 A.M. at Dr. Woo's room, 3704, and plans and protocol procedures were discussed regarding the format and workings during the judging of the Show. We divided ourselves into two panels.

Panel A: Dr. Woo, Chairman, Kaoru Oka, Rex Van Delden and Calvin Miyamoto as Clerk.

Panel B: Wallace Nakamoto, Chairman, Wilfred Yoshida, Yoshito Inouye, and Mrs. Jean Inouye as Clerk.

As assistants, the Saison Society provided several university professors and graduates who were anxious to learn the AOS System of judging.

At 2:30 P.M., the judges assembled in the lobby of the hotel and were led by Mr. Robert Yamato to the Show site at the Seibu Department Store on the 7th floor. We walked along an underground walkway which was their basement shopping area, and then along a three block of brisk walk in most invigorating fresh cold air, along the busy street of Tokyo. At the location of the Show site, many workers were still busy as a bee finishing the layouts and arranging the flowers and plants for the display. We noticed that all the flower spikes arrived with the heads encased in soft plastic material to preserve them from damage during transit, which is a good procedure. The pots were nice black, blue and colored ceramic vases, the envy of our orchid growers.

At 5:00 P.M., official judging was declared to commence. First, instructions were given to the clerks and assistants as to how to proceed, and the several forms to be filled out. There were 300 plants ear-marked for AOS judging and these were arranged according to genera on a long table on the side.

The judges appraised the plants and nominated 24 plants for judging and scoring. However, 8 plants were screened out, one plant was scored and

rejected. In all 3 AMs and 12 HCCs were awarded. The AOS Show Trophy was not awarded, as several societies together were involved in the displays. Anyway, they hope to retain it for publicity purposes to advertise the American Orchid Society.

The Orchid Show itself was elaborately conceived, with a new staging format never before attempted. There were three large staging areas which were rounded and arranged in tiers from ground to eye level and higher. In all there were over 5,000 plants on display and the genera included were numerous. Of course, cymbidiums, both miniature and standard, phalaenopsis, phaphiopedulums, cattleyas and other cold climate orchids were in profusion.

In addition to the main orchid show, there were arbors and vistas on either side, a meristem demonstration booth, a soft drink and coffee bar, a book sales counter, a novelty section of bridal dresses using orchid accessories, and bird cages on either side with small birds for added accent. An interesting prop was the use of electric humidifiers for misting. At either entrances there were special display signs of mirrored lettering, announcing the AOS Orchid Show in a landscaped setting.

There were the U.S. Ambassador's Trophy, The Governor Ariyoshi Trophy, The Hawaii Regional AOS Trophy, the AOS Show Trophy, and 21 Trophies from the Saison Society, all to be awarded.

The Orchid Show was scheduled to be open for seven days and they expect an attendance of 50,000 to 55,000 and an anticipated $1,500,000 million dollars in proceeds. The plant sales section was about one and a half as large as the area of the Show itself. Orchid and Flower shows are very popular in Japan and they have them about twice a month, and they are usually money makers.

Thursday, Feb. 21, 1985. This morning, the ribbon cutting ceremony was to officially open the Show. After breakfast, we met together at 9:00 A.M. and made the trek along the road where we saw thousands of workers rushing out of subway stations and literally running to work on time. We must warn you not to get on the wrong side of the traffic, as they travel on the left and they could easily trample on you.

The Ribbon Cutting Ceremony was done by a Representative of the Brazilian Embassy; Seibu, Inc. officials; Presidents of different Orchid Societies; and the Hawaii Regional Judging Center Chairman. There was TV exposure and speeches by dignitaries and the Master of Ceremonies. Immediately after, there was a Tea Ceremony, more of a coffee break, where more introductions and speeches were made. Mr. Minoru Arai, President of Seibu, Inc. was there to meet us.

Lunch was served at the Bistro de Paris after which we returned to the Show area where Dr. David Woo lectured on the "Organization and Administration of the American Orchid Society Judging System in Hawaii." An interpreter, Mr. Shigeaki Sai of the Seibu, Inc. was there to assist.

In the afternoon, the group went to the top of the Seibu Office building to see the unobstructed view of Tokyo City and also visited the Sunshine International Aquarium exhibit provided within the skyscraper. Mt. Fujiyama was seen in its full majestic splendor in distance.

Saturday, Feb. 23, 1985. We breakfasted at the hotel's Lobby Lounge and then walked over to the Orchid Show site. Rex Van Delden lectured on Paphiopedulum species, with slides shown. This time, we sampled lunch at Italian Restaurant. In the afternoon, we all went for a train ride to the electronic center to do some duty free shopping. It was quite an experience in stepping on and off the train as the bell sounds and the doors slam shut. We shopped at the Akihabara district at Llaox's.

We returned in time for the dinner party which was held at beautiful Chinese restaurant where a special menu of turtle soup, shark fins, Peking duck and other delicasies were prepared. Wallace Nakamoto responded to the opening speech of the President of Seibu, Mr. Arai. In the end, Dr. David Woo thanked the Seibu Co., and the Saison Society for all the courtesies and hospitality accorded us on this visit. We were presented with some tokens of the trip to Japan and we presented them with the Orchid Digest and other books we had brought along.

Sunday, Feb. 24, 1985. We packed our luggage preparatory to the trip home on JAL FLT. 72. However, there was one lecture which was scheduled that morning by Yoshito Inouye who spoke on Dendrobium species, with also slides showing.

Again, the officials of the Seibu Co. helped us pack our luggage and purchases in neat cardboxes, all taped and labeled expertly for us. They bid us farewell as we boarded a bus with all our gear for the Narita International Airport. En route, we had a tour of the City of Tokyo, including the famous Buddhist Shrine and the Imperial Palace Park. The flight home only took us 5-1/2/ hours as we rode the jet stream from Japan, and arrived in Honolulu at 8:45 A.M., all tired but happy after a most memorable and busy schedule in Tokyo, Japan.

Judging of Vandas and Their Hybrids

by Dr. T. David Woo [88]

In this paper on the merit judging of the Genus Vanda or Euanthe, my personal views are tempered with my years of experience, plus an artful appreciation as exhibited by the plant in bloom, and in coordination with the requirements of the COA of the American Orchid Society of which we are an affiliate.

This species was first discovered by Mr. Carl Robelin in 1882, and was described by Mr. R. G. Reichenback as Vanda sanderana that year. In 1914, it was transferred to the Genus Euanthe by Mr. Rudolf Schlechter. However, for hybrid registration purposes, the horticultural name of Vanda is retained.

Vandas as a genus have been found in Southeast Asia, China, Indonesia, Borneo, Ceylon, Java, Malaysia, Philippines, New Guinea, and Australia. Their species distribution throughout the Asiatic areas is as varied as their conformation and coloration.

Over 70 species have been discovered and described. Some are referred to as strap-leaf, semi-terate, and their cousins as Ascocentrums.

As one gazes upon the Vandas, the predominant picture is its roundness in form, distinctive color pattern, well displayed inflorescence, its unusual size and texture, and vigor, all of which makes this genus so unusual.

Accordingly, we have used these features as a basis of our judging and scoring for awards. Now let us look at the score sheets provided by the AOS, COA to judge Vandas and their hybrids.

Form of flowers	30 points
Color of flowers	30 points
Size of flowers	10 points
Texture	10 points
Habit or infloresence	10 points
Floriferousness	10 points
	100 points.

Explanation:

Form - emphasis on shape, roundness, fullness and flatness; well balanced arrangement of sepals, petals and lip. OVerlapping of petals is preferred. A typical flower can be encased in an equilateral triangle.

Color - must be harmonious and pleasing, definite and clear, not mottled or muddy. Definite and distinctive patterns of veining or regular arrangement of dots and blotches.

Size - should reflect the cross or parentage, usually equal to or greater than the average of the two parents.

Texture - substance or improved structural conformation must be taken into account.

Habit - the inflorescence should be erect or arching gracefully, and the flowers well spaced and well displayed. This is where the types of breeding comes in, for the numbers of flowers and their arrangement have a bearing.

Floriferousness - flowers should be mature and buds should not exceed the number of flowers on display. Otherwise, the full potential of the plant and its flowers cannot be appreciated by the judges. All blooms should be at their prime to be of award quality.

Judging of Semi-Terate Vandas

This is a hybrid resulting from the cross between a strap-leaf (wide leaf) and a terate (pencil leaf) vandaceous species. Of course the chromosome dormancy of the parent and the percentage of particular genes determines the appearance of the end results. Those that have been found to be productive are mainly tetraploids (4 N).

Examples are:

V. Emma van Deventer (4N) (V. teres x V. tricolor)
1908, by Mr. W. van Deventer, Bandoeng, Java.
V. Josephine van Brero (V. insignis x V. teres var longilabia)
1936, by Mr. J. van Brero, Java.
V. Maurice Restrepo (4N) (V. teres aurorea x V. sanderana)
1945, by Mr. Ernest de Saram, Ceylon.
V. Velthuis (4N) (V. Mevr. L. Velthuis) - (V. sanderana x V. Miss Joaquin),
1938, by Mr. C. A. Chevalier, Java.
V. Miss Agnes Joaquin (V. hookerana x V. teres)
V. Burgeffii - (V. sanderana x V. suavis)
V. Gilbert Tribulet - (V. coerulea x V. tricolor)
V. Nellie Morley (4N) - (V. Emma van Deventer x V. sanderana)
1952, by Mr. John Noa, Hawaii.
V. Colorful (2N) - (V. insignis x V. Miss Joachin)
1948, Foster Botanical Garden, Honolulu.
V. Mamo 'Miyao' (2N) - (V. hookerana x V. Tatzeri)
1960, by Mr. Masaya Miyao, Hilo, Hawaii.

The same AOS, COA score sheets apply here for judging.

Judging of Ascocenda Hybrids

Ascocentrum is a natural genus occurring in Tropical Southeast Asia, Thailand and adjoining regions. These plants are smaller and usually they posses most vivid and attractive colors.

We find that they readily cross with Vandas and the results make for a very pleasing, alluring, fascinating and much awarded hybrid category. They have become very popular with orchid growers ever since their presentation, especially where space in the green house is a premium.

Their breeding characteristics behave much like the Vandas for multi-

generics, and I have counted 36 "aras" registered to date.

A listing will be almost similar to Vandaceous Hybrids.

Beadara	Gottererara	Mokara	Rosakirschara
Bovornara	Himoriara	Nakamotoara	Shigeuraara
Christieara	Hugofreedara	Okaara	Silpaprasertara
Domingara	Isaoara	Onoara	Stamariaara
Darwinara	Kagawara	Pageara	Sutingara
Debruyneara	Komkrisara	Paulara	Sidranara
Devereuxara	Lewisara	Ronnyara	Vandewegheara
Eastonara	Lowsonara	Robinara	Wilkinsara
Fujioara	Micholitzara	Rumrillara	Yusofara

As a result of this particular crossing, a new and exciting era of such hybrids with the ideal of compactness, floriferousness and colorfulness, coupled with a decrease in plant size, and of advanced flower quality and quantity have been accomplished.

Dr. C. F. Sideris, Hawaii made the first cross in 1949 called Ascda. Portia Doolittle (Asctm. curvifolium x V. lamellata). He next made a cross of Ascda. Meda Arnold (Asctm. curvifolium x V. Rothschildiana) in 1950, which won over 80 AOS awards since.

The most active used Ascocentums from the Far East are:

Asctm. curvifolium - dwarf growth habit; small, bright red to orange flowers.
Asctm. miniatum - with multiple inflorescence.
Asctm. pumilum - a tiny, pendant species.
Asctm. ampulaceum - with abundant lavender flowers.

Examples from such crossings are:

Asctm. curvifolium - gives Ascda. Ophelia, Ascda. Meda Arnold, Ascda. Yip Sum Wah, Ascda. 50th State Beauty.
Asctm. miniatum - gives Ascda. Pong 'shaman', Ascda. Prachit Gold.
Ascda. Meda Arnold - gives Ascda. Blue Potentate, Ascda. Bonanza, Ascda. Medasand, Ascda. Malibu Aristocrat, Ascda. Peggy Foo, Ascda. Eileen Beauty.

Judging of Allied Genera and Multigeneric Hybrids

We find that Vandas will breed with Aerides, Arachnis, Ascocentrums, Doritis, Luisia, Neofinetia, Phalaenopsis, Renanthera, Rhynchostylis, Trigloglottis, Vandopsis, Ascoglossum, Gastrochilus.

As a result there are 40 multigeneric "aras" registered to date. Listed are:

Andrewara	Goffara	Mokara	Robinara
Bovornara	Holttumara	Moirara	Ronnyara
Burkillara	Hawaliara	Mizutara	Sutingara
Christieara	Isaoara	Micholitzara	Shigeuraara
Darwinara	Himoriara	Nobleara	Stamariaara
Devereuxara	Joannara	Nakamotoara	Trevorara
Debruyneara	Kagawara	Okaara	Vandewegheara
Eastonara	Lewisara	Pageara	Wilkinsara
Fujioara	Leeara	Paulara	Yapara
Hagerara	Maccoyara	Pehara	Yusofara

Judging of these multigenerics is a complex and intricate, complicated procedure which can test the skill of any competent judge. Of course, the parentage and types of breeding plays a dominant role in the outcome. However, these hi-tech modern hybrids cannot be overlooked by any means, as more and more of these types will come before us for judging. I wish you all good luck with them!

LECTURE GIVEN TO THE HAWAII ORCHID FOUNDATION ON JUNE 28, 1988.

Dr. T. David Woo

AOS Awards Compiled by James R. Fisher

Genus	1985
Vandas	722
Ascocendas	672
Hybrids	
V. sanderana	94
Ascda. Yip Sum Wah	98
V. Rothschildiana	84
Ascda. Meda Arnold	63
V. Nellie Morley	58
V. Jennie Hashimoto	42
Total Awards	2785 - includes all genera.

A most recent local cross of Ascda. Yip Sum Wah of Mr. Fukumura of Maui was awarded an FCC (90 pts.) at our Hawaii Regional Judging on May 22, 1988, and I was privileged to have been selected on that panel.

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Hawaii Regional Judging Center
AOS Awards 1985[89]

Alcra. Mem. Teruo Oka	'Chocolate Surprise'	HCC	79 pts.	
Alcra. Mem. Teruo Oka	'Hot Fudge'	HCC	77 pts.	
Alcra. Mem. Teruo Oka	'Lorene'	AM	81 pts.	
Angcm. eichleranum	'Shizu Kanno'	CCM	87 pts.	Hilo
Ascda. Mem. Miriam Lankester	'Aoki'	HCC	78 pts.	
Blc. Erin Kobayashi	'Lahaina Gold'	AM	87 pts.	
Blc. Laurie Tsuda	'Lisa'	HCC	75 pts.	
Blc. Toshie Aoki	'Robin'	HCC	76 pts.	Hilo
C. walkerana	'Yagi'	HCC	77 pts.	Maui
Ctna. Maui Maid	'Yagi'	AM	83 pts.	Maui
Den. Ahulani Hinojosa	'Blanche'	AM	82 pts.	
Den. Alice Noda	'Lono'	AM	82 pts.	
Den. C. K. Ai	'Amanda'	HCC	75 pts.	
Den. Don Burness	'Richella'	AM	80 pts.	
Den. Fran's Tammy	'Aisaka'	HCC	79 pts.	
Den. Golden Galaxy	'Richella'	HCC	79 pts.	
Den. Kelly Polido	'Kelly Polido'	AM	81 pts.	Maui
Den. Puanani Sunshine	'Puanani'	AM	81 pts.	
Den. Star of Lakeworth	'Nishida Orchids'	HCC	76 pts.	Maui
Den. Sunny Delight	'Puanani'	HCC	77 pts.	
Den. Troy Mikami	'Tamao'	AM	80 pts.	
Den. discolor var. broomfieldii	'Fred Maeda'	CCM	87 pts.	
Dvra. Hawaiian Delight	'Lore'	AM	80 pts.	Hilo
Hknsa. Alice Iwanaga	'Ruby Lips'	AM	84 pts.	
Lc. Orange Passion	'Oka'	HCC	78 pts.	
Milt. Kathleen Oka	'Oka II'	HCC	79 pts.	
Milt. Lorene	'Lorene'	HCC	78 pts.	
Odcdm. May Moir	'Robsan'	HCC	78 pts.	
Onc. Golden Sunset	'Conquest'	HCC	77 pts.	Hilo
Onc. Golden Sunset	'Robsan III'	AM	83 pts.	
Onc. Ivory Queen	'Robsan I'	HCC	77 pts.	
Onc. Ivory Queen	'Robsan'	HCC	76 pts.	
Onc. Loke Lani	'Robsan'	AM	81 pts.	
Onc. Magic	'Robsan'	HCC	79 pts.	
Onc. Pattionata Red	'Robsan'	AM	82 pts.	
Onc. Robsan	'Robsan I'	HCC	78 pts.	
Onc. Seka	'Rainbow'	HCC	77 pts.	
Onc. Sniffen	'Irene'	HCC	79 pts.	
Onc. Waimanalo Sunset	'Susan'	HCC	78 pts.	
Paph. Delrosi	'Maili'	HCC	78 pts.	
Paph. Goultenianum	'Haut-Medoc'	AM	81 pts.	Hilo
Paph. Maudiae	'Pinot Noir'	AM	89 pts.	Hilo
Paph. rothschildiana	'Richella'	HCC	79 pts.	

Paph. Transvaal	'Erin'	HCC	79 pts.	
Phal. Hawaiian Chiefess	'Nuuanu'	AM	82 pts.	Hilo
Phal. Misty Green	'Manoa'	HCC	78 pts.	
Phal. Universal Sunshine	'Gold Coin'	AM	81 pts.	
Pot. Koolau Orange	'Elizabeth'	AM	82 pts.	
Sc. Batemanniana	'The Lady'	HCC	79 pts.	
Sl. Gratrixiae	'Elizabeth'	HCC	76 pts.	
Sl. Orpetii	'Yonemura'	AM	81 pts.	
Slc. Hzael Boyd	'Mikkabi'	AM	80 pts.	
Slc. Mine Gold	'Lea'	AM	80 pts.	
Slc. Orglade's Early Harvest	'OC'	AM	80 pts.	
Tetratonia Dark Prince	'Robsan'	JC		
V. Hilo Sunrise	'Haruko'	AM	80 pts.	Hilo
V. Iliwai	'Nishida Orchids'	HCC	75 pts.	Maui
V. sanderana	'Dream City'	HCC	77 pts.	Maui
V. Southeast Beauty	'Lore'	HCC	77 pts.	Hilo
V. W. M. Lieu	'Leo'	HCC	79 pts.	Hilo

New Judging Site - Lyons Arboretum [90]

This is really an auspicious occasion which marks the transfer of our Judging Center from the Foster Botanic Gardens to the Lyons Arboretum of the University of Hawaii.

On behalf of the American Orchid Society, Hawaii Regional Judging Center and for the Judges of the Honolulu Judging Center, I would like to thank Dr. Yoneo Sagawa and the staff of the Lyon's Arboretum for allowing us to use your wonderful facilities.

How nice it is that we can now conduct our judging sessions under ideal conditions, with the use of your classroom and the work shop patio without undue interruption. No more problems related to inclement weather conditions of wind and rain and poor lighting could interrupt our judging as before.

We appreciate the opportunity to use your library facilities for research, which will be a boon for our student judges in their prescribed studies.

We also are pleased that a place has been allotted for storage of our records which seemed to be piling up as the years roll by.

The Hawaii Orchid Foundation, which sponsors the Honolulu Orchid Center, will be most happy to work with the Lyon's Arboretum to implement the Orchid Garden Project in every way. Our judges will be most happy to chip in to give a hand when called. This is a promise. Most of them are experienced hands at staging numerous orchid shows.

Finally, may we convey our deepest thanks and Aloha from this group of Certified Judges and we sincerely hope that our mutual interest in ORCHIDS - with its myriad opportunities for study and enjoyment of this exotic genus in all its aspects, will form a lasting and binding relationship between the Lyon's Arboretum and the Hawaii Regional Judging Center to the ultimate of the public's benefit in Hawaii.

Dr. T. David Woo
Chairman - Honolulu Judging Center
July 26, 1987.

The Hawaiian Experience in Vanda Breeding

by Dr. T. David Woo [91]

Previous to 1940, only a few Vanda hybrids were made, as only twenty-five crossings have been registered by then. This is understandable, as the field consisted mostly of species, like V. dearei, V. denisoniana, V. coerulea, V. coerulesence, V. cristata, V. merrillii, V. insignis, V. sanderana, V. tricolor, V. luzonica, V. paviflora, V. hookerana, all yet to be discovered, described and recorded.

As more experience was gathered in attempts at hybridizing these members of the Euanthe family, greater impetus and interest were generated for this new category of such gorgeous and unusual blooms that thrive so naturally in our Hawaiian climate today.

We find breeders progressing from primary crosses to secondary crosses and on to tertiary and other more complex crossings with semi-teretes, ascocentrums, and other intergenerics, once the techniques have been mastered. Undesirable results were discarded immediately.

Since then, Hawaii has taken the lead in this phase of hybridization, such that we were dubbed the "Vanda Capital of the World" at one time.

Part One:

I would like to chronicle the progress of such hybridization program from first generation to second generation and other complex crosses, and also to mention the outstanding hybrids of those times.

This too, takes a lot of imagination and a sense of appreciation by the breeders as to what values had to be identified, and what particular positive points need to be accentuated, in order to create the endless array of possibilities and combinations available.

With such intense devotion and appreciation, plus a blending of the artistic sense inherent in these early orchidists, they had been able to accomplish this reality to this point.

Part Two:

The process of Line Breeding for Blues, Pinks, Yellows, and Whites and the progression from primary to secondary to tertiary crosses and their results are recorded herewith.

In this process, selfing, sibling or back crossing for vigor and fixation of such qualities as intensification of color, more flowers, better inflorescence are of paramount importance. A good breeder always lets his mind wander while dreaming about that ultimate perfect orchid he hopes to develop some day.

Part One

Primary Hybrids (First Generation)

with V. sanderana:

V. Manila (V. luzonica x V. sanderana), 1943, Rapella
V. Rothschildiana (V. coerulea x V. sanderana), 1931, Chassaing
V. Afterglow (V. insignis x V. sanderana), 1952, H. Kagawa
V. Brugeffii (V. sanderana x V. suavis)
1928, Munich Botanical Garden

with other species:

V. Denisander (V. sanderana x V. denisoniana), 1956, R. E. Warne
V. Emma van Deventer (V. teres x V. tricolor), 1926, van Deventer
V. Trimmerrill (V. merrillii x V. tricolor), 1948, Shipman

Secondary Hybrids (Second Generation)

With V. sanderana:

V. Alexander Bowman (V. Honolii x V. sanderana)
1957, Mrs. Alexander Bowman
V. Betsy Sumner (V. faustii x V. sanderana), 1949, O. Kirsch
V. Bill Sutton (V. Manila x V. sanderana), 1951, O. Kirsch
V. Clara Shipman Fisher (V. Tatzeri x V. sanderana), 1940, Shipman
V. Diane Ogawa (V. Hilo Blue x V. sanderana), 1964, Ogawa
V. Eisenhower (V. Ellen Noa x V. sanderana), 1962, J. & S.
V. Frank Crook (V. Honolulu x V. sanderana), 1956, R. E. Warne
V. Jennie Hashimoto (V. Onomea x V. sanderana)
1954 E. Y. Hashimoto
V. Mabelmae Kamahele (V. Ohuohu x V. sanderana), 1953, Ogawa
V. Mevr. L. Velthuis (V. Miss Joaquin x V. sanderana), ?, Chevalier
V. Ohuohu (V. Clara Shipman Fisher x V. sanderana), 1947, Hirose
V. Onomea (V. Rothschildiana x V. sanderana), 1948, Tank
V. Pacific Sunset (V. Frank Crook x V. sanderana), 1972, Miyao
V. Pukele (V. Betsy Sumner x V. sanderana), 1957, O. Kirsch
V. Renten Hutchinson (V. Laurel Yap x V. sanderana)
1973, Hutchinson
V. Reverand Masao Yamada (V. Rhonda x V. sanderana)
1983, M. O. Bigelow
V. Rhonda (V. Violet Kihara x V. sanderana), 1966, K. Inouye
V. Roberta Chun (V. Madame Dinger x V. sanderana), 1954, R. L. Chun
V. Woodlawn Glory (V. Mamo x V. sanderana), 1981, W. K. Nakamoto
V. James Toogood (V. Waipuna x V. sanderana), 1963, Toogood
V. Gertrude Miyamoto (V. Mem. G. Tanaka x V. sanderana)
not registered
V. Kaumanasand (V. Kaumana x V. sanderana), not registered

with V. coerulea:

V. Bonnie Blue Fukumura (V. Pukele x V. coerulea)
1967, R. T. Fukumura
V. Hilo Blue (V. Bill Sutton x V. coerulea), 1960, Miyao
V. Laurel Yap (V. Frank Crook x V. coerulea), 1965, Leo Yap
V. Mem. Fumiko Omoto (V. Onomea x V. coerulea), 1958, R. Yahiro
V. Princess Blue (V. Jennie Hashimoto x V. coerulea), 1963, Miyao
V. Rose Davis (V. Rothschildiana x V. coerulea), 1951, R. Tanaka

with other species:

V. Brownie (V. Miss Joaquin x V. merrillii)
1947, Foster Botanical Garden
V. Colorful (V. Miss Joachin x V. insignis), 1948, C & H
V. Donald Camp (V. Manila x V. luzonica), 1954, R. S. Anderson
V. Harvest Time (V. Ellen Noa x V. dearei), 1954, Woodlawn
V. Julia Sideris (V. Rothschildiana x V. tricolor), 1949, O. Kirsch
V. Mamo (V. Tatzeri x V. hookerana), 1957, Miyao
V. Valerie (V. Clara Shipman Fisher x V. luzonica), 1953, Hawaii V.N.

Tertiary Hybrids (Third Generation)

V. Abbie Ho Chong (V. Mary Foster x V. Rothschildiana), 1954, J. W. Jay
V. Aggie Kagawa (V. Keoni Noa x V. Eisenhower), 1985, H. Kagawa
V. Alice Saito (V. Lim Swee Aun x V. Eisenhower), 1982, H. Kagawa
V. Beebe Sumner (V. Onomea x V. Clara Shipman Fisher), 955, G. W. Sumner
V. Brian Nishiguchi (V. Shizu Kanno x V. Honuapo Dream), 1985, Nishiguchi
V. Chimey Blue (V. Chimey Walker x V. Waianae Blue), 1985, Miyamoto
V. Dawn Nishimura (V. Rothschildiana x V. Hilo Blue), 1966, Dr. H. Nishimura
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V. Golden Karen (V. Joyce Lynne Chong x V. Ellen Noa), 1979, Ono
V. Haruko Sumida (V. Rhonda x V. Abbie Ho Chong), 1982, T. Sumida
V. Hilo Bay (V. Hilo Blue x V. Mabelmae Kamahele) 1967, Miyao
V. Hilo Fantasy (V. Mamo x V. Thananchaisand), 1983, Miyao
V. Hilo Monarch (V. Mamo x V. Madame Sonboon), 1982, Miyao
V. Hilo Queen (V. Eisenhower x V. Jennie Hashimoto), 1963, Miyao
V. Hilo Radiance (V. Mamo x V. Fred Kirby), 1983, Miyao
V. Hilo Rose (V. Mamo x V. Boonchoo), 1982, Miyao
V. Hilo Sunrise (V. Mamo x V. Lenavat), 1983, Miyao
V. Hilo Sunset (V. Mamo x V. Dawn Nishimura), 1982, Miyao
V. Hilo Surf (V. Mamo x V. Ohuohu), 1982, Miyao
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V. Joan Rothsand (V. Joan Swearinger x V. Onomea), 1964, Lenavat
V. Kalama Maui (V. Pukele x V. Mabelmae Kamahele), 1970, Furumizo
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V. Karen Ono (V. Rothschildiana x V. Frank Crook), 1967, Ono
V. Keoni Noa (V. Joyce Lynne Chong x V. Eisenhower), 1972, John Noa
V. Kona Sunset (V. Eisenhower x V. Frank Crook), 1972, Miyao
V. Kuniko Sugihara (V. piihonua x V. Jennie Hashimoto), 1962, Sugihara
V. Makaha Valley (V. Chua Ngih Neo x V. Mabelmae Kamahele)
1985, Miyamoto
V. Malyn Santos (V. Keoni Noa x V. Gertrude Miyamoto), 1980, R. Yahiro
V. Mamo Beauty (V. Emma van Deventer x V. Onomea), 1964, Miyao
V. Manisaki (V. Mem. T. Iwasaki x V. Manila), 1953, Dr. W. Carter
V. Mem. Mitsuru Nishiguchi (V. Emma van Deventer x V. Pacific Sunset)
1981, Nishiguchi
V. Mikiko Ken (V. Tatzeri x V. Pattaya Beach), 1985, Miyo/Kanno
V. Nancy Rodillas (V. Mabelmae Kamahele x V. Jennie Hashimoto)
1963, Rodillas

V. Patricia Lee (V. Gertrude Miyamoto x V. Ellen Noa), 1959, K. C. Lee/Kirch
V. Richella Blue (V. Judy Miyamoto x V. Rothschildiana), 1973, R. K. Mizuta
V. Royal Blue (V. Rothschildiana x V. Janice), 1968, R. K. Mizuta
V. Shizu Kanno (V. Rothschildiana x V. Waimea), 1971, Miyao
V. Snowcap (V. T.M.A. x V. Jennie Hashimoto), 1982, H. Paul
V. Stuart Furumizo (V. Green Gold x V. Ellen Noa), 1971, Furumizo
V. Takeji Ogawa (V. Ohuohu x V. Jennie Hashimoto), 1960, Ogawa
V. Tami Takakura (V. Mary Foster x V. Clara Shipman Fisher)
1985, Wallbrunn
V. Toy Len Chang (V. Saeng Pra-Aritya x V. Adrienne)
1982, Mrs. L. C. Toy
V. Waianae Blue (V. Rothschildiana x V. Helen Paoa), 1965, Miyamoto
V. Waipuna (V. Ellen Noa x V. Rothschildiana), 1952, Y. Fujinaga
V. Wendy (V. Alicia Ono x V. Hilo Blue), 1969, Ono
V. Windward Pearl (V. Eisenhower x V. Dawi Sri), 1984, Perreira
V. Woodlawn Sapphire (V. Mamo x V. Bonnie Blue Fukumura)
1981, W. K. Nakamoto

Semi-Terate Hybrids:
V. Miss Joaquin (V. hookerana x V. teres), 1893, Ridley/Joachin
V. Mevr. L. Velthius (V. Miss Joaquin x V. sanderana), ?, Chevalier
V. Nellie Morley (V. Emma van Deventer x V. sanderana), 1952, Morley
V. Acala
V. Meraum
V. Eva Sumner — all not registered
V. Nora Porter
V. Noel
V. Leilani

Part Two

Line Breeding for Blues:

Species used: V. coerulea, V. luzonica, V. tricolor, V. dearei.

Bench mark: V. coerulea was chosen because of its stunning sky blue color, cold tolerance (altitude 2,500 to 4,000 ft.). It is found in India, Nepal, Burma, N. Thailand. Advise to use the rounded variety with no twisting petals, e.g. "Sagarik" or "Lois Grove" strains.

Primary Crosses:
- V. Rothschildiana (V. coerulea x V. sanderana)

Secondary Crosses: use blues only.
- V. Onomea (V. Rothschildiana x V. sanderana)
- V. Suwapee (V. Rhimayothin x V. coerulea)
- V. Motes Indigo (V. Fuch's Delight x V. coerulea)
- V. Motes Blue Centurion (V. Motes Pioneer x V. coerulea)
- V. Bangkok Blue (V. Diane Ogawa x V. coerulea)
- V. Sun Tan (V. Beebe Sumner x V. sanderana)
- V. Gertrude Miyamoto (V. Mem. G. Tanaka x V. sanderana)

Tertiary Crosses: use blues and purples only.
- V. Jennie Hashimoto (V. Rothschildiana x V. Onomea)
- V. Judy Miyamoto (V. Rothschildiana x V. Mabelmae Kamahele)
- V. Hilo Princess (V. Rothschildiana x V. Eisenhower)
- V. Nancy Rodillas (V. Mabelmae Kamahele x V. Jennie Hashimoto)
- V. Kasem's Delight (V. Sun Tan x V. Thospol)
- V. Gordon Dillon (V. Madame Rattana x V. Bangkok Blue)
- V. Mem. Madame Pranerm (V. Waipuna x V. Eisenhower)
- V. Fuch's Delight (V. Kasem's Delight x V. Gordon Dillon)
- V. Madame Rattana (V. Sun Tan x V. Mem. Madame Praenum)
- V. Woodridge (V. Madame Sonboon x V. Sun Tan)

Good examples of Blue Hybrids are:
- V. Rothschildiana 'Blue Ribbon', FCC/AOS, (90 pts)
- V. Deva 'Robert', AM/AOS, SM 11 WOC
- V. sanderana 'Orchidglade', AM/AOS, (81 pts)
- V. coerulea 'Lois Grove', FCC/AOS, (92 pts)
- V. Onomea 'Walcrest', FCC/AOS, (94 pts)
- V. Motes Indigo 'Bart Motes', AM/AOS, (80 pts)
- V. Richella Blue 'Bella Tew', HCC/AOS

Line Breeding for Pinks:

Species used: V. sanderana, V. coerulea, V. tricolor, V. luzonica. Advise to use V. coerulea (pink).

Bench mark: V. Rothschildiana (pink)

Primary Crosses:
- V. Rothschildiana (V. sanderana x V. coerulea)
- V. Boschii (V. tricolor x V. luzonica)

V. Tatzeri (V. sanderana x V. tricolor)

Secondary Crosses: use pinks only.
with V. sanderana:
V. Diane Ogawa (V. Hilo Blue x V. sanderana)
V. Bill Sutton (V. Manila x V. sanderana)
V. Lenavat (V. Joan Rothsand x V. sanderana)
V. Diane Ogawa (V. Hilo Blue x V. sanderana)
V. Onomea (V. Clara Shipman Fisher x V. sanderana)

with V. coerulea:
V. Rothschildiana (V. sanderana x V. coerulea)
V. Laurel Yap (V. Frank Crook x V. coerulea)
V. Suwapee (V. Rhimayothin x V. coerulea)
V. Bangkok Blue (V. Diane Ogawa x V. coerulea)

Tertiary Crosses: use pinks only.
V. Nancy Rodillas
(V. Mabelmae Kamahele x V. Jennie Hashimoto)
V. Judy Miyamoto (V. Mabelmae Kamahele x V. Rothschildiana)
V. Rung Roeng (V. Pryoporn x V. Gordon Dillon)
V. Gordon Dillon (V. Madame Rattana x V. Bangkok Blue)
V. Sumon Sophonsiri (V. Deva x V. Gordon Dillon)
V. Deva (V. Crimson Glory x V. Thospol)
V. Kasem's Delight (V. Sun Tan x V. Thospol)
V. Fuch's Delight (V. Kasem's Delight x V. Gordon Dillon)
V. Grape Delight (V. Haad Song-Khla x V. Kasem's Delight)
V. Frank Coronada (V. Kasem's Delight x V. Robert Smith)
V. Madame Sonboon (V. Varavan x V. Joan Rothsand)
V. Woodridge (V. Madame Sonboon x V. Sun Tan)

Good examples of Pink Hybrids are:
V. coerulea 'Orchidgrove', CHM/AOS, (83 pts)
V. Motes Indigo 'Bart Motes', AM/AOS, (80 pts)
V. Rothschildiana 'Nelly', FCC/AOS, (91 pts)
V. Gordon Dillon 'Mike', AM/AOS, (81 pts)
V. Judy Miyamoto 'Lore', AM/AOS, (82 pts)
V. Nancy Rodillas 'Best of Show', HCC/AOS, (79 pts)
V. Madame Soonboon 'Sheldon', AM/AOS, (82 pts)

Line Breeding for Yellows:

Species used: V. dearei - large flower, vibrant color, concolor yellow, free flowering, good substance, keeping quality, delicious fragrance. V. sanderana - use the alba form. V. denisoniana - more flowers, erect infloresence, flowers 2-3x/yr., cold resistant, 2,000 ft.

Bench mark: V. Ellen Noa (yellow)

Primary Crosses:
V. Ellen Noa (V. sanderana x V. dearei)
V. Golden Doubloon (V. tessellata x V. denisoniana)

Secondary Crosses: use yellows only.

With V. sanderana:
V. Eisenhower (V. Ellen Noa x V. sanderana)
V. Eisensander (V. Eisenhower x V. sanderana)
V. Ohuohu (V. Clara Shipman Fisher x V. sanderana)
V. Kaumanasand (V. Kaumana x V. sanderana)
V. Tubtimtepya (V. Gertrude Miyamoto x V. sanderana)

With V. denisoniana, tessellata:
V. Senethra Arukorala (V. Betsy Sumner x V. tessellata)
V. Arjuna (V. Mimi Palmer x V. tessellata)
V. Motes Honeybun (V. Kultana Gold x V. denisoniana)

Tertiary Crosses: use yellows only.
V. Kaumana (V. Ohuohu x V. Eisenhower)
V. Hilo Queen (V. Eisenhower x V. Jennie Hashimoto)
V. Hilo Sand
V. Lore Paul
V. Mary's Demity
V. Ratchada (V. Hilo Queen x V. Patou)
V. Papaaloa Queen
V. Mem. Madame Pranerm (V. Waipuna x V. Eisenhower)
V. Thananchai (V. Mem. Madame Pranerm x V. Tubtimtepya)
V. Southeast Beauty (V. Thananchai x V. Eisenhower)
V. Seeprai (V. Aurawan x V. Thananchai)
V. Seethong (V. Seeprai x V. Thananchai)
V. Rasri (V. Oranum Ornete x V. Thananchai)
V. Charlie Clark (V. Rasri x V. Bangkhensri)
V. Phetchabun Gold (V. Kultana Gold x V. Seethong)
V. Fuch's Sunshine (V. Rasri x V. Pranerm Ornete)
V. Kultana Gold (V. Pong Tong x V. Rasri)

With V. stangeana 'Motes Tartar':
If used to breed for Yellows, may turn out to be what V. coerulea is for Blues.

Good examples of Yellow Hybrids are:
V. Southeast Beauty 'Alice Tanaka', AM/AOS, (82 pts)
V. Charlie Clark 'Brandi', AM/AOS, (84 pts)
V. Fuch's Sunshine 'Brandi', HCC/AOS, (78 pts)
V. Rasri 'Frank Gorsky', AM/AOS, (81 pts)
V. Southeast Beauty 'Huelo', AM/AOS, (80 pts)
V. Ellen Noa 'Ruben', HCC/AOS, (80 pts)
V. Ellen Noa 'No. 2 Charlene', AM/AOS, (81 pts)

Line Breeding for Whites:

Species available today are V. sanderana, V. teres, V. candida, V. hookerana, V. dearei, V. tricolor, V. luzonica, V. insignis, V. merrillii, V. denisoniana, V. scandens.

Bench mark: V. sanderana, V. alba.

Other albino forms identified: V. teres alba, V. teres, V. candida, V.

hookerana alba.

Primary Crosses:
V. Miss Joaquin 'Diana'
V. Josephine, alba
V. Velthuis
V. Motes Blue Centurion, pure white variety.

Comment: This program has never been attempted before as such, but the tools and materials to work with are there. A hunt for alba and albino forms of Vandas may turn up some surprising specimen. Failing this, one can branch out into intergeneric breeding to bring out the white color.

Mr. Oscar Kirsch while writing on Vanda Breeding, made the observation that crossing yellows with purples did produce some whites.

If a homozygous (pure strained) genes for white color is obtained by selfing, sibling and line breeding, such a program for hybridization for White Vandas can be assured.

IN RETROSPECT, if history were to repeat itself, where hindsight is better than foresight, or, if we had to do it all again, such mistakes and pitfalls which led cur Hawaiian hybridizers down blind alleys or unsolved mysteries could have been avoided.

This review of our experiences ought to pave the way for a more direct and less costly approach to the problems for others to follow. The novice armed with this advice should well benefit.

With the help of modern horticultural practices and scientific knowledge of chromosomes and genes, and assistance from super data computers now-a-days, the road ahead seems less formidable.

However, if we can coordinate and program it all, and supervise with our human brain resource, I predict that an entirely new era in Hybridization of Vandas will emerge - in fact, also for all other genera of ORCHIDS as well.

IN CONCLUSION, the elements of Vanda Orchid Breeding is the same as for any other genera of Orchids. One must be familiar with techniques for intercrossing, balancing off good species, reversing crosses, line breeding and calculation of percentages in genealogy. An understanding of chromosomes and genes intervention, of color intensity genes, of polypoidy interaction, (why tetraploids give triploids, etc.) is necessary.

To understand why heterozygous (mixed) genes give multiple colors and why homozygous (pure strained) genes give solid colors is equally important.

In short, a good orchidist must be philosophical enough to realize that there are as endless combinations as there are number of seeds in a pod, which only the human mind can conjure the unusual, modern high-tech data computers notwithstanding.

This is what hybridization is all about.

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A retired sugar plantation physician. An Accredited Judge of the American Orchid Society since 1968. President, Hawaii Orcjid Society (1958); Orchidarium Hawaii (1967); Chairman, Orchid Digest Judging, Hilo (1967); Chairman, Hilo Supplementary Judging Center, American Orchid Society (1968 - 1973); Chairman, American Orchid Society, Hawaii Regional Judging Center (1977 - 1979); Chairman, Honolulu Judging Area, (1980 - 1990); Vice Chairman, Hawaii Region. The multigegeneric WOOARA is named for him.

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